THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—45TH YEAR SYDNEY, SATURDAY, MARCH 15, 1958 No. 11

Table of Contents.

The Beattie-Smith Lectures.[1]

(UNIVERSITY OF MELBOURNE.)

By NORVAL MORRIS,

Associate Professor of Criminology and Senior Lecturer in Law, University of Melbourne.

LECTURE II: THE PSYCHIATRIST AND THE COMMUNITY.

I INTENDED to devote this lecture to the topic of the psychiatrist and the community, and had, as you know, even allowed that intention to be advertised. Happily, the law does not treat a statement of intention as a statement of fact, for when I addressed myself to that wide subject I found that my animadversions on topics outside my immediate experience were either staggeringly superficial or, if useful, proved on closer inspection to be the most obvious plagiarisms, conscious or unconscious. In the result, despite an honest intention to wrestle with the larger topic, I found that my pen followed my experience, and therefore, in this lecture, I shall discuss only a few general aspects of the relationship between the psychiatrist and the community, concentrating rather on the attitude of the community, and particularly of other doctors, to psychiatry; on certain problems of research; and on the role of the psychiatrist in the treatment of delinquency and crime.

Let me suggest, by way of meiosis, that the public relations of psychiatry are not particularly good. As in so many other aspects of this pro-scientific but anti-intellectual society, less responsible pronouncements on psychiatry seem to receive much more public attention than they deserve. There would appear to exist, here too, a Gresham's Law, by which sensational and immoderate public pronouncements of some psychiatrists drive out the accurate and useful contributions of their colleagues. Only gradually is the terror of the mental hospital being removed from the mind of the average citizen. Only gradually are the Federal and State Governments coming to appreciate the extent of their financial obligations. Only gradually is it being recognized that the psychiatrist may have a profound contribution to make, not only to the treatment of the mentally ill, but also to the general pattern of man's life.

There are many public pressures antipathetic to the acceptance of the value of psychiatry. The novelist has not dealt kindly with the psychiatrist, though he has profited greatly from the scatologous opportunities offered by a superficial acquaintance with psychiatric and particularly psychoanalytical literature. The Press, the cinema, wireless and television have pandered to superficiality, and have rarely stressed the dedicated work and rapidly advancing skills of psychiatrists. But all this is well

[1] Delivered at Melbourne on September 24 and October 1, 1957.

known, and I have no simple solutions to offer. In my last lecture I tried to suggest one technique by which one aspect of publicity, damaging to the discipline of psychiatry, might be rendered less harmful—a means by which the unseemly public wranglings in the court might be minimized. An improvement in the public's understanding of the work of psychiatry and of psychiatrists will, in the long run, flow from their clearer recognition of the value of the developments that have taken place in the past few years in Victoria in our mental hospitals, in the establishment of more out-patient clinics, and in the important work of the private practitioner.

At present there are remote polarities in the attitudes of individuals to the psychiatrist: where one offers veneration, the other scoffs; on the one hand the praises of the proselyte, and on the other Sam Goldwyn's proposition that "anyone who goes to a psychiatrist ought to have his head read"; to one the psychiatrist is an incredibly perceptive science-fiction type of character, to another he is a charlatan; there are few who try to make a realistic assessment of the present and future contribution of the psychiatrist to the Western community. Looking from the outside, but looking as a friend, it has for some time seemed to me that until the psychiatrist is better accepted amongst his medical colleagues and, to a lesser extent, amongst fellow professional workers, such as lawyers, it is unlikely that he will receive a sufficient degree of acceptance by the community in general. I want this, of course, more for the community's sake than for the *amour propre* of the psychiatrist. In accordance, therefore, with my aim to suggest small reforms, let me offer a plan, which has as one purpose the improvement of understanding of the role of psychiatrists by doctors and lawyers generally, and which has also, I hope, other advantages.

It would be unseemly for one invited to speak by the medical faculty of this university to seek to expound the inadequacy of the attention given in our medical course to psychiatry and to some aspects of psychological medicine; let me leave it to others better qualified than I, to carry the burden of that battle. But I hope it will not be regarded as inappropriate for me to suggest the desirability of a post-graduate medico-legal course. I speak from some experience here, as a little over a year ago I attended such a course at the Harvard Law School, run jointly by a lawyer and a doctor. The course there was turned primarily towards the lawyer's needs; but it could easily be adapted to serve the needs of both professions.

Such a post-graduate medico-legal course might solve many of the problems of communication between the professions of law and medicine, and should increase the range of mutual understanding between them, and of their joint understanding of certain aspects of the work in the behavioural sciences, including the broad fields of psychiatry and social psychology. Wider perspective should come to both professions from a group of young doctors and lawyers working together for a short time on the same problems of relevance to their respective disciplines.

Prior to discussing the possible organization of such a medico-legal course, let me mention some of the topics which might be considered in it. Broadly, such a course should take up for consideration three topics—medicine and government in its widest sense, medicine and the work of the courts, and forensic psychiatry. In particular it might canvass the legal aspects of the organization of the medical profession, adverting to such problems as admission, registration, deregistration and so on; the definition of quackery and its legal control; national health schemes and national health insurance schemes; hospital records, doctors' records and their forensic use; medical evidence and testimony; medical certificates and their legal and moral significance; liability in negligence and the doctor; workers' compensation and the doctor; damages in personal injury cases; testimony regarding drunkenness and the many challenging problems of alcoholism and the law; the legal aspects of group practice; the coroner and his court; and a whole concatenation of problems around forensic psychiatry which it is unnecessary for me to list before this audience.

I would envisage such a course as being conducted by a lawyer and a doctor who, between them, had sufficient experience and knowledge to handle some of the many interesting problems that I have listed. Such a course should be offered only to graduates in medicine or law, and efforts should be made to attract recent graduates. I do not have in mind a long course; probably a seminar running for a fortnight, say 10 full working days, would be sufficient to make a worthwhile change in the attitudes of those who attended it to the problems I have mentioned. The appropriate pedagogic technique would seem to me to be the critical discussion of extensive prepared materials, problems and cases, brought in detail to the attention of the participants in the course in ample time for them to be well prepared for discussion. Indeed, the major effort of those charged with running such a course would be turned towards the preparation of suitable materials.

If such a course could attract the attention and effort of a dozen lawyers and a dozen doctors each year (an appreciable number of whom would be likely to be psychiatrists), it would seem to me that over the years it would make a very real difference in the attitude of lawyers and of doctors generally to many psychiatric and community problems.

It would not be an expensive course to run. It would be an exciting course to run. The main problem would seem to be one of time, particularly for doctors, who seem to subject themselves to such working pressures that they risk their development as citizens. Surely there is a fortnight during January when we could gather together such a group of graduated students and turn them loose on the discussion of some of the most fascinating and important aspects of our community organization. I have no doubt that the law faculty would collaborate in such an enterprise—it is easy to say this when one is leaving it and can bear no responsibility for it. I have no doubt that a sufficient number of young lawyers would be attracted to the course to make it worth while. Frankly, I have some doubt whether the medical profession, and in particular the psychiatrists amongst that profession, will manage to find the time to collaborate in the organization of such a course, though I feel confident that great benefit to psychiatry would flow from such an enterprise.

Such a course is turned towards the sharing of knowledge concerning problems of community organization between the disciplines of medicine and law; but we also face the duty of developing that type of knowledge itself. If a line can be drawn between the physical sciences and the social sciences (or to use the American term, the "behavioural sciences"), then I assume that the psychiatrists and the lawyers will be grouped amongst the social or behavioural scientists. At all events, the lawyer and the psychiatrist, *qua* lawyer and *qua* psychiatrist, should surely see themselves as part of the fearful effort so to understand ourselves and so to organize our society as to fulfil the physical potentialities for the happy, full and materially prosperous life that the technologists have allowed us. It is indeed a huge task, and we all suffer from the generally imprecise state of knowledge in the social sciences. There are some obvious explanations for this and some obvious palliatives: in the first place, we spare so little money for research in the social sciences; we train and allocate so few of our best minds to it—if there is a shortage of technologists, there is a famine of social scientists; we are satisfied so easily with empirically tolerable solutions; we trust so readily to common-sense, though the thrust of the development of knowledge in the physical sciences has shown us most abundantly how misleading common-sense can be, for there is no doubt that, according to common-sense, a heavier weight falls more rapidly than a light weight, and the moon and sun daily circle the earth. Likewise, common-sense teaches us in the social sciences many things which, I suspect, are profoundly untrue. To a considerable extent we still live by a dæmonology in the social sciences which we have painfully, over the centuries, exorcised from the physical sciences. Again, there is no simple solution to this problem. All that I can say, and indeed that everyone who has the

opportunity to do so should say, is that this community, like every other community, is subject to the ubiquitous moral commandment to use its best intelligence to develop its knowledge, and that this demands our allocating a considerably greater proportion of our resources of men, of money and of materials to the development of knowledge in the social sciences.

In his fascinating "An Historian's Approach to Religion", Arnold Toynbee puts this whole development into an historical perspective. He devotes one chapter to "The Idolization of the Invincible Technician", and there analyses the community's attitude towards experimental science through the centuries, writing:

> In the seventeenth century, Human Nature was out of bounds for Experimental Science, as being within the province of Theology. It was only on this condition that Experimental Science could obtain toleration from the then still formidable ecclesiastical authorities of the Western World; and it was a condition that the experimental scientists and technicians of the day were willing to accept. They had vast worlds still to conquer in the realm of Non-Human Nature; and, while they felt that the theologians' way of dealing with Human Nature had been intellectually barren . . . the experimental scientists, at this early stage of their intellectual conquests, had no method of their own for dealing with Human Nature in their own style. In the nineteenth century, however, Western Science began to extend its conquests from the non-human to the human province of Nature. It began to discover how to deal with Human Nature by the methods that had proved successful in the investigation of Non-Human Nature. Human branches of science now began to be added to the classical non-human branches: first Political Economy, using data provided by the Industrial Revolution, then Anthropology, using data provided by the West's encounters with primitive societies; then Sociology, applying the standpoint and methods of Anthropology to the Western Society itself; and then, after A.D. 1914, Psychology, using data provided by cases of shell-shock in the First World War.

Toynbee then describes how the discovery and application in the second World War of a technique for releasing and discharging atomic energy have both caused the experimental scientist to lose confidence in the ultimate value of his work and lost for him the freedom of discussion, of scientific interchange and liberty of choice of direction which he had possessed for the previous 250 years, and on which his development largely depended. He concludes:

> If the non-human sciences now lose their temporary freedom of investigation and consequently fall again under an eclipse, perhaps there will be a concentration of interest and energy on the human sciences.

For my part, I profoundly hope that, whatever its causes, there will be this concentration on research and development in the social sciences and that we in Australia will play a considerable part in it.

In my own field of criminology, so little, so very little, is yet known. If, as occasionally happens, a magistrate asks for my advice on the best disposition of a given young offender, I find that I do not have much to offer. Like psychiatrists, who are called to give evidence in these circumstances, I can suggest that there is a chance, possibly quite a good chance, that the young offender will, if given certain treatment, not commit crime again. But how vague it all is! How entirely unconvincing I sound to myself! How unconvincing psychiatrists giving that type of evidence always sound to me! But this lack of conviction is the result of a struggle for honesty. It would be so easy to be cocksure. The truth is that we do not have many answers to the courts' questions. I cannot tell you the success rates for children subjected to the treatment of probation in this State. Nor can anyone else. Certain information can be offered concerning the number of children on probation who have had their probation orders revoked; but this is only the beginning of the story, because it leaves out of account those children who committed crime but did not have their probation orders revoked, and those children who completed their period of probation and subsequently committed a crime. It tells us very little about the success of probation.

The same is true of those children committed to institutions in this State. Nobody knows the success rate of any single institution for delinquent children in Victoria or of all our institutions for delinquent children. And even if these rates were known, we should not be much further forward. For example, let us suppose that the truth is that of all children put on probation 75% do not later commit a crime, whilst of children committed to institutions only 50% do not subsequently commit a crime. Can we conclude anything from this concerning the success of these methods of treatment? Of course we cannot. That 25% differential may measure more the degree of success in the committing magistrates in sending the "graver risks" to institutions and putting the "lesser risks" on probation. Before we would really have any knowledge, it would be necessary for us to do one of two things: either we should have to submit two groups of children, matched as to those facts we sought to hold constant, to different types of treatment and see whether those treatments over the years had a differential effect on their success rate; alternativly we should have to conduct such a detailed study into the later conduct of a large number of children put on probation and a large number committed to institutions as to be able to sort out from amongst them two matched groups, who would lead us to form tentative views on the differential success rates of different types of treatment applied to similar children.

No one in this community is attempting to discover this type of information; yet, lacking it, we continue to impose sentences guided by "hunches" and comforted by good intentions.

I suspect, further, that there are many similar obvious gaps in our minimum knowledge for the conduct of our affairs in the social sciences generally that are not being sought to be filled. So difficult is research into these problems in the behavioural sciences at this stage of our knowledge that it demands the combined efforts of people of different training. We are, mercifully, gradually doing away with the childish jealousies that characterized the struggle for status between the psychiatrists, psychologists, social workers and many excellent voluntary workers in the field of social science; but though we have paid lip service to the idea, there is little team collaboration in research undertakings. Too many of the psychologists are lost in their interminable methodological arguments; too many of the social workers are devoting their full time to fighting an aggressive, ill-advised, rearguard action against the idea that untrained benevolence may lead people to do worthwhile social service work; too many psychiatrists are resting in the security of their medical status and clinical experience, and not coming out to do intellectual battle with the community and to combine in research endeavours with others who, though lacking their particular training, may be able to contribute to development in the social sciences.

Let me avoid the hyperbole of such generalities by concentrating on certain aspects of the psychiatrist's contribution to the treatment of adult criminals and juvenile delinquents. This seems to me to be one important aspect of the psychiatrist's contribution to the welfare of the community generally, and therefore properly to fall within the ambit of this lecture.

Certain activities of psychiatrists in the field of correction are well accepted. Their role in the training of staffs of correctional institutions and organizations is obvious; their role as advisers to the court I mentioned in the first lecture; and there are also other well-accepted activities. But in prisons themselves and in institutions for young offenders, very little by way of psychiatric treatment is to be found. There are many reasons for this, not the least being the considerable difficulties of offering any type of treatment in the prison environment. I shall always remember a group of prisoners being lined up in Wormwood Scrubs prison and a rugged, gravel-voiced warder expressing his desire that those who were to attend for psychiatric treatment that morning should proceed to the medical section by shouting: "Fall out the nuts!"

In some American institutions and in some institutions in Europe there is an endeavour to adapt the techniques of group psychotherapy to the treatment of criminals; but as yet there would not seem to be any great success attending these endeavours. I do not think it would be too pessimistic to say that to date efforts to provide psychiatric treatment in penal institutions have not been successful. And yet there is a real need for this type of work, a need the dimensions of which it is hard to estimate, but an obvious need nevertheless. I cannot understand how any observer of goodwill can spend any time in penal institutions without appreciating that there are a considerable number of inmates in those institutions whose problem is primarily one for those skilled in the treatment of psychiatric conditions, prisoners who are obviously immune to our traditional deterrent, vocational and educational retraining processes. At the present stage of psychiatric knowledge I do not know whether this group is 10% or 20%, more or less, of the prison population; but that there is such a group, and that it is a group which should be differently treated for the sake of the community as well as for reasons of decency and humanity, I cannot doubt.

You will note that I have by dint of careful circumlocution so far avoided the use of the word psychopath. The recent "English Commission on The Law Relating to Mental Illness and Mental Deficiency, 1954-1957", made no endeavour to avoid this word, and has recommended a complicated and far-reaching scheme for the psychiatric treatment of psychopathic criminal offenders, which I will later consider. Sir Norwood East and Dr. De Hubert in 1939 reached a similar appreciation of the need for the special psychiatric treatment of certain offenders, though they, too, avoided the word psychopath and used the wonderful English phrase, the "non-sane, non-insane offender". They recommended the provision of a special penal institution to serve as a clinic and hospital for treatment and investigation; as an institution for special training and treatment under psychiatric guidance; as a colony for those unable to adapt themselves to prison but not accessible to reform; and as an institution for mentally abnormal young offenders. It is understood that such an institution, to be administered by psychiatrists but within the prison system, is now being built in England.

The Scandinavian countries have experimented more than most with the psychiatric treatment of this group of offenders, and in particular, there is an institution at Herstedvester in Denmark run by psychiatrists, but within the penal administration of the State, which is one of the outstanding experimental correctional institutions of the world. Recently the Californian penal system has started such an institution at Vaccaville.

The thrust of these developments is practical and, in the long run, unavoidable. Whatever the theoretical premises from which the criminal law develops, it eventually becomes obvious to every honest student of that system that there are some criminals who are neither psychotic nor mentally defective, but who should be regarded as, and are best treated as, primarily psychiatric patients. Effective community protection as well as effective prison administration demands that we should develop special institutional facilities, or special facilities within our existing institutions, for their treatment. Such facilities should be administered by psychiatrists and will, it seems to me, for the time being combine certain of the characteristics of the prison and of the modern mental hospital. Sooner or later, this type of development will come in Australia. The establishment of a special institution for homosexual offenders in the New South Wales prison system is perhaps a rather unfortunate step in this direction, but it nevertheless tends towards an ultimate realization that we do have within our prison system certain offenders who are best regarded as psychiatric patients. The recent establishment of a psychiatric clinic for the treatment of certain offenders in Pentridge, and the liaison between the prison system and the Mental Hygiene Authority out-patient clinics, are important steps in this direction in Victoria.

One of the disadvantages of Federalism in Australia is that for problems of prison administration it has broken up our governmental organization, so that we have too few prisoners in each State, other than in New South Wales, to allow for the separate classification of psychopathic criminals—or, if you prefer it, non-sane non-insane criminals—into a special institution. It is a strange complaint, the complaint that we have too few criminals for a given purpose, and it is a disadvantage that we can bear with equanimity; but nevertheless it is true that it would be economically more possible to develop such as institution to handle all such prisoners in Australia rather than to develop separate institutions in each State.

Given our present prison system, what should be the function of psychiatric services in that prison? In particular, to which criminals should these services be applied? For my part, I would strenuously oppose, for reasons I hope to make clear, any facile suggestion that the group called "psychopathic criminals" should be singled out for special quasi-penal, quasi-psychiatric treatment. I believe our inquiry must begin at an earlier stage than the acceptance of this vague rubric. Humanitarian sentiment is the main motivation in the movement for reform in correctional institutions, for both adults and juveniles. To this valuable motivation we then add rationalizations which affirm, I believe accurately, that reform in these institutions will also be economically sound—that to lay out resources on treatment will in the long run be economically advantageous for the community. Even so, there are limits to the extent to which we can apply the community's resources to the assistance of those who have offended against the criminal law. This means that some very practical economic questions are pressed upon us. In relation to the use of psychiatric techniques of treatment for adult criminals and for juvenile delinquents, these practical questions take the following form: Given limited psychiatric resources in the community, to which criminals and deliquents should we apply those resources and in what way? In other words, which types of offenders are from an economic and immediately practical point of view best treated psychiatrically rather than by our traditional punitive, educative and vocational training techniques? I am far from sure of the answer to this question.

The question is sometimes phrased differently, it being suggested that what we need to know is which criminals are deterrable and which are not deterrable, for then we shall know when it is useless to apply the traditional deterring and correcting techniques and therefore necessary to apply other more imaginative and far-reaching techniques of social protection, in which the psychiatrist would obviously play a considerable part. For my part, I prefer the formulation which concentrates on the practical treatability of any group of offenders to that which seeks to assess their deterrability. If the question is phrased around practical treatability, it would seem to me that there would be greater possibility of adjusting the limited psychiatric resources to the economic problem of the best use of all our treatment resources, because it may well be that many of our non-deterrable criminals are in practice also not psychiatrically treatable. In other words, by pursuing the deterrable analysis you may reach the following classification: (*a*) some prisoners are likely to respond to traditional peno-correctional techniques; (*b*) others will respond only to those techniques when combined with the therapeutic skills of psychiatry; and (*c*) a third group will respond to neither. Too frequently, the label "psychopathic criminal" has been used as a synonym for a criminal who is non-deterrable and non-reclaimable by traditional techniques; he may, however, be in the third group, whose reclamation passes entirely beyond our present knowledge, psychiatric and otherwise. If the analysis is pursued along the lines of practical response to available psychiatric treatment, which I have suggested, what you are trying to do is to carve out of the total prison population, both deterrable and non-deterrable by traditional techniques, that group which is likely to respond to psychiatric therapeutic efforts; then the plan as to the best use of the available treatment resources, traditional and psychiatric, can be made. For my part, I hope that

psychiatric treatment will not be regarded as a last ditch effort to be applied to this area of social protection only when all else fails, and I fear that if you pursue the deterrable analysis you tend to reach this result.

Of course, to argue whether research should be directed to discovering which criminals are deterrable, or whether it should be directed to discovering which groups of criminals are psychiatrically treatable, is a somewhat academic exercise in that, to my knowledge, no confident answers to either of these questions can be offered; but it is of real practical importance, because the decision which criminals to select for psychiatric treatment is far from being academic—indeed, it is unavoidable. Too much of our research efforts have, I would submit, been devoted to problems of ætiology. Too frequently psychiatric research has concentrated its endeavours only on the most obviously disturbed and abnormal criminal offenders, and has not joined in such limited research in penology as has been pursued in answering these, to my mind, more practical and in the long run more important questions.

I do not think the devising of experiments to test the value of psychiatric treatment for various groups of criminals or young offenders passes at all beyond our methodological competence. Nor do I think it passes at all beyond the range of our available resources in this community. I would urge most strenuously that this type of research should be undertaken in Victoria. In particular, I hope that the psychiatric clinic in Pentridge will see this as a research obligation.

Why should it be necessary for us to pursue this type of research for ourselves? After all, why should we not rely on the research efforts of this nature that are being made, or will be made, in England, in the United States and in Europe? I believe strongly that the answer is that we cannot rely on others, though I can offer no logically persuasive reasons for this view. I suspect that one of the reasons for this is to be found in the many subtle differences in social organization between communities, which require that their needs be met by different systems for treating mental ill health, crime, deliquency and similar types of social breakdown. Thus, the organization of an institution like Herstedvester in Denmark or Vaccaville in California cannot, even though it is precisely understood, be merely copied in Victoria. All that can be transplanted are the ideas underlying these social experiments. To return to the original line of interrogation, can we merely observe these ideas in other countries and apply in our country those we judge successful where they are operating and appropriate to our needs? Again, I do not think we can. If we stand back and hope that overseas research and experimentation will solve our problems for us, it seems that we tend to freeze into the standing-back posture. It is my belief that only when a State has within its own borders at least a nucleus of social experimentation and research will it be capable of accepting and applying the results of overseas research and ideas. It is only when you have a few people who are actively engaged in this type of research that anyone will exert the effort to make himself thoroughly familiar with overseas developments—you will always have some academics who are prepared to do this, but, as you know, academics have a very hard job to persuade non-academics to action. It is therefore my firm belief that only when we here in Victoria turn more of our resources of psychiatric investigation to an endeavour to answer one fundamental and complex question, shall we make any real advance, and shall we be able to make use of overseas experience and knowledge in assisting that advance. The question is: which of the criminals and which of the juvenile delinquents in our community are best suited to psychiatric treatment as a means of ensuring their future conformity to law, the limitation of our resources for such treatment and the competing claims on those resources being borne in mind?

To a considerable degree, the application of psychiatric treatment in other countries to the correction of adult criminal offenders, other than the psychotic or mentally defective, is concentrated on the treatment of psychopaths. This is an extremely wide concentration, because of the width of this classification and its various and diverse connotations. I assume that in practice the group which any given psychiatrist will classify as psychopathic will in fact be almost identical with the group, other than those who are psychotic or mentally defective, which he will class as not likely to respond to ordinary correctional techniques. If this is correct my argument concerning the need to concentrate more on the practical treatability of offenders by psychiatric techniques rather than the treatment of only those who do not respond to traditional penocorrectional techniques would seem to be strengthened. At all events, the "Royal Commission on the Law Relating to Mental Illness and Mental Deficiency, 1954-1957", under the chairmanship of Lord Percy of Newcastle, which presented its report to the English Parliament in May, 1957, advanced an ambitious plan for the control and treatment of psychopathic criminal offenders. I hope I shall not be thought to be casting doubt on the great value of this report, and on its immediate importance to many aspects of mental health legislation, if some criticisms of the plan for dealing with psychopathic criminals are offered.

The Commission reported as follows:

> Special compulsory powers over some psychopathic patients are necessary for the protection of the public, and in some cases they are justified by the prospects of improvement in the patient's mental condition or social behaviour if he can be given suitable treatment or training. [Paragraph 353.]
>
> In our opinion it would do much more harm than good to try to include in the law a definition of psychopathic personality on the analogy of the present legal definition of mental defectiveness. It is far preferable that, in referring to various forms of mental disorder, the law should use general terms which will convey a sufficiently clear meaning to the medical profession without trying to describe medical conditions in detail in semi-medical language. . . . It would in any case be particularly difficult to find a suitable detailed description of psychopathic personality. Such a description would probably have to mention the particular aspects of the personality which may be affected, and possibly also try to give some guide as to the cause of the disorder. But there are too many different types of psychopathic personality, and too little is at present known about their essential nature and causes, for a description of this kind to be easily agreed; and even if one were agreed now, increasing knowledge might soon make it out of date. Lack of knowledge about the nature and causes of particular forms of disorder does not mean that they cannot be recognised and successfully treated in individual patients. [Paragraph 357.]

This is the proposition: though I cannot define an elephant I can recognize one when I see it, which sounds a good analogy but is, of course, dangerously misleading when you allow legal consequences to flow from it.

The Commission then recommended that:

> In cases in which the court is satisfied that normal methods of disposal alone are insufficient or inappropriate and that the patient requires special medical or social care which a particular hospital or local authority is able and willing to provide, it should be possible for such hospital or community care to be provided, with or without special compulsory powers as appropriate. If the court is satisfied, in addition, that there is real danger of the commission of further and serious offences if the patient is discharged prematurely, quarter sessions and assizes, but not magistrate's courts, should be able to direct that he should not be set at large without the consent of the Home Secretary within such period as the court thinks fit. [Paragraph 520.]

The Commissioners expressly desired to leave these powers unlimited as to type of offence and duration of detention, arguing that "the need for the public to be protected from dangerous psychopathic patients for as long as their dangerous tendencies persist is no less great than the public's need to be protected from mentally ill patients who are dangerous" (pagagraph 529), and they expressly accepted the possibility that if there is "a strong need to protect others from anti-socal behaviour by the patient" (paragraph 317), compulsory powers to detain the criminal should be exercised even in excess of any maximum period specified by the court when sending the offender for treatment as a psychopathic criminal.

The machinery to carry out this type of sentencing is complex, relies heavily on adequate pre-sentence advice to the courts and on the availability of treatment facilities, and seeks to establish a Mental Health Review Tribunal whose function would be to ensure that patients are not improperly detained. The Commissioners have built many safeguards into their scheme, both at the court and at the review tribunal level, in an endeavour to avoid injustice, but I doubt their efficiency in practice; further, I doubt their social morality. I doubt the need for taking such powers and for creating what the Commission recognizes may be a new quasi-criminal code. Surely, at the present stage of our skills in predicting human behaviour and in predicting and treating criminal behaviour, we should limit an individual's freedom only for the period during which we would normally sentence him for his crime, independently of a prediction of his future conduct, or for the period during which we should normally compulsorily hold him in a mental hospital because of his mental condition, independently of the criminality of his behaviour. To set up a middle ground justifying custody half by an ill-defined, indeed frankly undefined, mental condition and half by a prediction of crime, the whole power being taken pursuant to the commission of a crime, is, I would submit, to get the worst of both worlds and for the individual the protection of neither. Nor is there anything like sufficient evidence of the psychiatric treatability of this vaguely diagnosed group of psychopaths to justify regarding them as a group properly to be held indefinitely under psychiatric treatment.

The upper limits of sentencing practice by the criminal courts should afford an ample duration of time for such psychiatric therapy as the community is likely to provide, whether in prisons or in mental hospitals, or in institutions which are half prison and half mental hospital. If the justification for taking this extreme power is community protection, then I would argue that at our present level of skill in predicting human behaviour, our habitual criminal preventive detention legislation is all that the community can properly demand—it should not seek a protection by an unhappy joinder of the peripheral and unsurveyed areas of psychiatry and criminal law.

The motivations for this type of development may be humanitarian and benevolent; this does not at all mean that benevolent and humane results will be reached. The history of the treatment of criminals is replete with good intentions, but there is a dearth of established successes. Sir Walter Moberly pointed out in his Riddell Memorial Lectures on "Responsibility" that:

> The desire to excuse people who labour under handicaps, however kindly in intention, may be a cruel kindness, for in the long run it must impair their status in the community. In a well-meant endeavour to spare them, we may unwittingly inflict on them an injury deeper and more irremediable than any which now threatens them. Men whose case is wholly pathological are disqualified for freedom. No man can contract out of his social obligations on the plea of moral incapacity without thereby abdicating his right to the direction of his own life. [Page 20.]
>
> If it is proposed that the State should undertake a wider function and that it should deal with the whole man and attempt to remake or else to end him, we must ask whether the State is really competent for so ambitious a task and whether it can be trusted not to abuse a power so tremendous. Neither Whitehall or Harley Street is qualified to play Providence to the delinquent; such a role is beyond both their jurisdiction and their competence. [Page 21.]
>
> No doubt there remains a small residuum of purely pathological cases requiring special treatment and segregation, just as there are those who are incurably insane; but recognition of these should be kept to a minimum and all borderline cases should be treated on the opposite hypothesis. [Page 23.]
>
> No doubt also it is a new and salutary discovery that the delinquent is often a sick rather than a wicked man, wretched rather than contumacious, and that his crime may be "not so much an outrage as a reflection on society". Much reform has come this way and more is still to come. But such a theory can be so overstated that its influence on the delinquent is demoralizing. Recoiling from one extreme, we may fall into the other. [Page 23-4.]

In the United States it seems to me that there has been demonstrated a clear misuse of the concept of psychopathy in its application to criminals. In that country, only in the recently established institution at Vaccaville and for a brief period in the Federal institution at Springfield has any attempt been made, to my knowledge, specifically to treat in special prisons the criminals classified as psychopaths, other than the sexual psychopaths. But for the group unhappily called "sexual psychopaths" there has been in the United States a positive rash of special legislative schemes which, in my submission, and apart from a very few examples, are wholly misguided and dangerous alike to civil liberty and to the reputation of psychiatry. Twenty-one States in the United States have now passed special sexual psychopath laws. They represent a gross and unfortunate departure from painfully developed and carefully defended ideals of justice and civil liberty. They vary, but have this general effect: upon proof of commission of a sexual offence, widely defined (and in some States even this is not required—a tendency to such crime suffices), and upon certification by appropriate medical and psychiatric authority that the offender is a psychopath, or is unable to control his sexual proclivities, or is likely to continue in sexual crime if merely sent to prison, the offender is classified as a sexual psychopath. So classified, he may be held in a mental hospital, or in a special institution, or in a prison, until the appropriate medical and psychiatric authority certifies that he is cured or unlikely to relapse into sexual crime.

These statutes suffer from many defects, and are now happily receiving the forceful criticism alike of psychiatric and legal authorities in the United States. Their leading and most influential critic has been Professor Paul Tappan, of New York University, whom we are likely to have with us in Melbourne in 1958 as a visiting Fulbright Professor. His view is that these sexual psychopath laws "defy the generally accepted conclusions of contemporary psychiatry" and have been wholly ineffective. The only good thing that can be said about them is that in only one or two States have they been at all extensively applied.

Two Californian psychiatrists, Dr. Hacker and Dr. Frym, critically surveying the Californian *Sexual Psychopath Act*, report a case in their experience in which "a defendant had not only been innocently convicted of a crime which his brother had committed, but also had been unanimously declared a sexual psychopath by three examining psychiatrists, who, quite properly and according to instructions, refused to consider the evidence of the trial and came to their conclusions on the basis of the type of offense the defendant was supposed to have committed".

Some States, like New Jersey, have legislated on this matter without falling into the foregoing errors of exaggerating our treatment skills, and have required that treatment facilities exist before treatment powers are taken, and that the offender cannot be detained longer than the sentence prescribed by the court as punishment for his offence.

The moral I should like to draw from this narrative of the American experience with sexual psychopath laws is this: to say that a condition is psychologically abnormal is not at all to say that it is psychiatrically treatable; to say that it is psychiatrically treatable is certainly not at all to say that it is psychiatrically treatable when facilities and resources for treatment are lacking. If a condition is not treatable either because of lack of therapeutic knowledge or lack of therapeutic resources, it is grossly unjust to take the power to detain an offender until his condition is cured, on the assumption that the need to cure is the justification for taking these powers. If you want to keep him until he is no longer a danger, say so, and keep him; but do not keep him on the fake explanation that you are keeping him until he can be cured. There are very real dangers of injustice flowing from an apparently benevolent but far-reaching application of the idea of psychiatric treatment of criminal offenders, and I would hope that responsible psychiatrists would see that the only safe line

of development of their science in its application in this area of human misbehaviour is its gradual development within the bounds of justice according to law so painfully built up over the centuries.

There is a criminological theory that supports those psychiatrists who will not accept the foregoing limitations on their role in the treatment of offenders—it is the theory of social defence, advanced most vehemently by criminologists in Italy and France and receiving some support elsewhere. They argue that the essential justification for exercising control over a criminal is the need to protect the community, and that the control should be exercised over him—if necessary his freedom denied him—until it is reasonably safe to allow him to return to the community. Of course, once they have said this, they go further and are prepared to detain people more because of what they are likely to do than because of what they have done. For my part, I doubt that our knowledge has progressed nearly to the stage which will permit us to accept this type of Orwellian nightmare. I believe strongly that within the upper limits of sentence normally prescribed by the courts, there is ample opportunity for psychiatrists to develop treatment techniques, and that if a man is not psychotic, or properly held as an inmate of a mental hospital, there is no reason at all ever to extend the sentence which the court has imposed on him, or to seek to have that sentence possibly extended by legislation permitting detention to be based on predictions of conformity rather than on some concept of a just maximum punishment.

In particular, the selection of sexual offenders for this type of extreme treatment is unwise. Only the less serious sexual offenders have a high recidivist rate, there is not a progression from less serious offences to graver offences, and generally the community's attitude to sexual offenders is coloured more by ignorance, fear and prejudice than by knowledge. The existing maxima of punishments provided by law for sexual offences should give us more than adequate time to exercise such techniques of psychiatric treatment as we think proper to bring to bear on sexual offenders.

I cannot leave this topic without remarking that a presently desirable reform is the abrogation of the law making consensual homosexual conduct between adult males a criminal offence. For many years criminologists have been urging the repeal of this law, stressing its inefficacy, its lack of general enforcement and its uneven application, its value to the blackmailer and its tendency to provoke suicide. The risk was that to make such statements led some to think that the speaker was not opposed to homosexual behaviour, the distinction between preserving the social pressures against homosexual conduct and yet abrogating an ineffective and cruel law not being perceived. Now, however, with the Church of England Moral Welfare Council and a Roman Catholic Group convened by Cardinal Griffin both advocating this reform, and with the Wolfenden Committee, a Departmental Committee on Homosexual Offences and Prostitution, reporting in like terms to the Home Office, the case becomes both overwhelming and respectable. Of course, this does not mean that this reform will now be made throughout the common law world; there is a long haul between widespread intellectual agreement and the passage of legislation.

So far in this lecture my ideas on the role of psychiatry in prisons and in institutions for juvenile offenders have been somewhat negative. Let me now try to be more positive. I look towards the gradual development in this country, as seems to be happening elsewhere, of special psychiatric institutions or special separate psychiatric sections within prisons, and the germ of this development is now to be seen in Victoria in the new clinic at Pentridge. I hope for intensive research into the applicability of psychiatric techniques of treatment to various categories of offenders, both within and outside the walls. Knowledge of the differential success rates of psychiatric and other techniques applied to matched groups of offenders is what is needed: then we can make the socio-political decisions as to the best use of our present treatment resources, psychiatric and otherwise, and as to their expansion. For the time being we have neither the knowledge nor the need to take any greater powers over criminals to treat them psychiatrically than the criminal law now allows.

By way of conclusion, let me comment on the absence of a chair of sociology in Australia. No university in this continent has thought it practicable to endeavour to draw together the strands of the social sciences into a faculty of sociology. There are many people in universities in Australia whose work would properly be embraced within this classification. But, to my knowledge, there is no one whose task it is to draw together the various strands of skill and knowledge in the different specialties in sociology. Nor, of course, does the appointment of a professor of sociology in any Australian university necessarily do other than provide a modest stipend and relatively comfortable chair for a person who may, or may not, be of any use whatsoever to the community; he may broaden our minds or he may merely broaden another part of his anatomy. But it would seem that the time is ripe for such an appointment, and I would hope that it would be one which would receive the warm support and collaboration of psychiatrists who, I take it, are the stars in the sociological firmament.

It has been a privilege for me to give the 23rd Beattie-Smith lectures. An an interested layman, seeking to advance some ideas which may be of value to the psychiatrist and to his public relations, it was inevitable that my offering would be scrappy, of uneven coverage, not integrated theoretically, and dealing with a variety of topics—for this I make no apology; it was implied in the experiment. I do hope, however, that my ideas have not seemed to you too critical of psychiatrists, or of their role in the community now and in the future; they were not meant to be. I have a deep and sincere admiration for the work of many psychiatrists in this State, both in the Mental Hygiene Authority and in private practice, and have personal gratitude to men in both groups for the warmth and efficiency of their assistance to me and to my family when mental illness visited us. Such are the statistics of mental illness in the community that many must feel as I do, and many families must share this sense of gratitude; it is a pity that there still exist prejudices which diminish the freedom of expression of this feeling. Any criticism I have offered should therefore be regarded, whether it is sound or useless, as that of one sincerely sympathetic to the development of the discipline of psychiatry, to which men properly look for assistance in some of their darkest days.

OBSERVATIONS ON HUNTINGTON'S CHOREA BASED ON A QUEENSLAND SURVEY.

By Neville Parker,
Brisbane.[1]

Few of us can fail to be moved to compassion by the grimacing and uncontrolled movements of the choreic. Intensive investigation of this disease is justified by the contribution which it can make to fundamental psychiatric theory. Although many articles have described its numerous facets, much remains unknown. There is great confusion in the literature over the mental symptoms associated with this disease, and case histories have not been recorded in sufficient detail to enable the insights of present psychiatric knowledge to determine their genesis.

A survey of Huntington's chorea in Queensland began two years ago with the aim of educating and helping affected members and their families. In the process an attempt was made to understand its psychiatric manifestations, and to look for factors of value in prediction. Many of the data serve only to confirm the results of more extensive investigations elsewhere, and these will not be reported in detail. Attention is directed to the lesser

[1] Formerly psychiatrist, Brisbane Psychiatric Clinic.

known aspects of Huntington's chorea and a few interesting observations which resulted from this survey.

Historical Survey.

> It is of no great importance to us who made the discovery for every discovery is made more than once, and none is made all at once, nor is success meted out according to deserts. (Freud, 1915.)

At least five articles had been written on this disease before Huntington's classical description in 1872. In 1841 Waters had given an adequate description, and 1859 Lund published in an unnoticed Norwegian medical report a complete account, noting its onset in middle life, the progressive course, its hereditary character and associated mental features (Orbeck and Quelprud, 1954). Progressive hereditary chorea would be a more appropriate title; but perhaps the association of Huntington's name with the disease is now so well established that it would be pointless to change it.

Julia Bell surveyed the literature in 1934, covering 113 publications. It is a pity that this outstanding work is available in only one Australian library.[1] Since then surveys have been conducted in England (Critchley, 1934; Minski and Guttmann, 1938; Spillane and Phillips, 1937; Bickford and Ellison, 1953; Pleydell, 1954), Australia (Brothers, 1949 and 1955), and Norway (Orbeck and Quelprud, 1954). More recent articles have focused attention on prediction, and this aspect has been reviewed by Patterson, Bagchi and Test (1948), with later contributions from Denmark (Harvald, 1951) and England (Leese *et alii*, 1952).

Survey.

Initially all the known patients with Huntington's chorea who had been admitted to our mental hospitals over the last 45 years, and all patients admitted to the Brisbane general hospital during 1955-1956 were determined. Family pedigrees were extracted from their clinical notes and elaborated from the records of the Registrar-General's Department. All living relatives were then approached by letter, and the excellent pamphlet "Huntington's Chorea and Your Family" (kindly provided by the Minnesota Genetic Research Unit) was forwarded to them.

A check was then made on records of all relatives admitted to a general or mental hospital, and general practitioners were approached in districts where the disease was present. An attempt was made to trace the source of entry in each case (see Table I).

As a result of these investigations, a record of the known cases in Queensland together with family pedigrees was published in October, 1956, and forwarded to medical superintendents of mental hospitals and base general hospitals, neurologists, psychiatrists, physicians, and medical officers visiting homes for the aged and other Government institutions. Since then further cases have been referred.

Commonwealth Investigation.

In view of the migratory habits of choreic families, a survey of this disease cannot be limited to one State. It is to be hoped that New South Wales, South Australia and Western Australia will be investigated in the future to enable a complete Commonwealth record to be published.

Incidence.

Hughes (1924) in the United States of America found that there were four domiciled choreics for each hospital case. Brothers (1949) noted that only 10 patients in a family involving 86 choreics required admission to hospital, and of the 65 patients discovered in Queensland, only 25 were admitted to mental hospitals. It can be readily seen, then, that all estimates based on surveys derived exclusively from mental hospital cases—the usual procedure—will give a figure which is much too low. Pleydell (1954) based his survey on information obtained from *questionnaires* sent to every practitioner in Northamptonshire, and obtained a much higher incidence rate (see Table H). The Queensland survey should in time give a more accurate assessment, but at present the total of 31 living patients must still be considered a gross underestimate. Brothers (1957) commented that at the time when his Victorian survey was written in 1953, the incidence was 2·3 per 100,000 population—a figure identical with the present Queensland estimate—but since then 60 additional cases have come to his notice.

[1] The Fisher Library, University of Sydney.

TABLE I.

Source of Entry of Patients with Huntington's Chorea.

TABLE Ia.

Country.	Number of Families.	Number of Cases.
England:		
London	3	19
Lancashire	1	4
Norfolk	1	11
Scotland	2	5
Ireland	1	8
New South Wales ..	2	6
Not known	1	5
Total	11	58

TABLE Ib.

Patients with No Known Relatives in Queensland.

Source of Entry.	Number of Patients.
England	1
New Zealand	1
Victoria	4
New South Wales	1
Total	7

Genetic Aspects.

It has been established that the choreiform movements are transmitted by a dominant gene which is not sex-linked, and there are no valid examples in the literature to contradict this hypothesis. Concerning the mental symptoms, however, there has been great difficulty in separating the relative importance of nature and nurture, and in this respect the detailed study of twins is of great value. Three cases of Huntington's chorea in monozygotic twins have been recorded, but these have done nothing more than to confirm the view of the strictly hereditary ætiology of the choreiform movements. In two papers (Russell, 1894; Popenoe and Brosseau, 1930) it is briefly mentioned that

TABLE II.

Incidence of Huntington's Chorea.

Authority.		Country or State Surveyed.	Minimum Number per 100,000 Population.
England.			
Bell and Armstead ..	1933	Lancashire	0·14
Critchley	1934	Suffolk	1·25
		Devon	0·40
		Essex	0·28
		Kent	0·25
		Yorkshire	0·19
Muski and Guttmann ..	1938	London	1·8
Bickford and Ellison ..	1953	Cornwall	5·57
Pleydell	1954	Northamptonshire ..	5·0
Australia.			
Brothers	1949	Tasmania	17·4
	1956	Victoria	4·5
Present survey	1956	Queensland	2·3

both twins developed chorea, and the third (Rosanoff and Handy, 1935) describes female twins who both developed choreiform movements at 35 years, complicated at first with behaviour difficulties, later with psychotic trouble and finally mental deterioration; no attempt was made to assess the relative importance of hereditary factors in the production of these mental symptoms.

There follows a report of a fourth pair of monozygotic twins both of whom developed chorea at the same age, had similar mental symptoms and died within a few months of each other. Unfortunately it suffers from lack of detail, a defect common to retrospective studies.

CASE I.—An English couple migrated to Australia in 1857. The wife's signature in the birth register reveals the unsteady hand of the writer, and it is sufficiently abnormal to mark her as the carrier of the gene. Of their four children, two developed Huntington's chorea (B3 and B4, Figure I). The latter, mother of the identical twins, was normal in every way until the age of 57 years, when she became clumsy with her hands. Choreiform movements of the face commenced 12 months later, and these gradually became worse until she was unable to feed herself. She worried over trifles, was very bad-tempered, and would curse her husband with great venom. Later her speech became indistinct, and by the age of 63 years it was impossible to understand her. She died from pneumonia, at the age of 66 years, leaving 10 children.

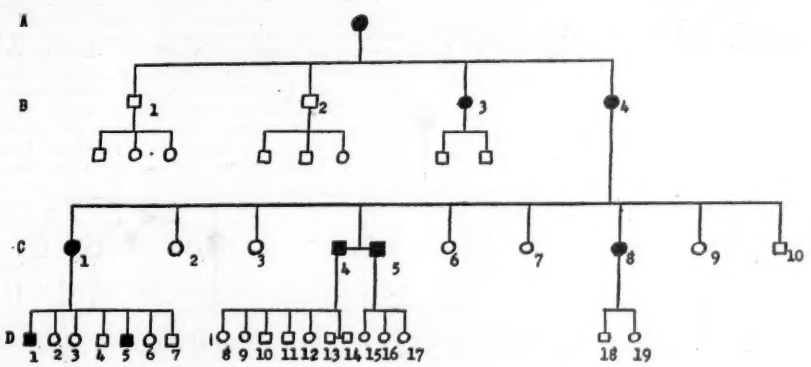

FIGURE I.

Open circles, females; solid squares, males with chorea; circles half-open, half-solid, suspected chorea. C2, aged 72 years, seven normal children. C3, died at 66 years, single, no evidence of chorea. C6, aged 66 years three normal children. C7, aged 64 years, single, no evidence of chorea. C9, aged 60 years, one normal child. C10, died aged 30 years, one normal child; two children were dwarfs and died in infancy. D18, died in infancy. D1, two children, eldest aged 22 years. D4, two sons and two daughters. D6, three healthy children. D7, two children. D8, aged 42 years, no evidence of chorea. D15, aged 43 years, no evidence of chorea.

Five of the family (C2, C3, C6, C7, C9,) did not develop chorea, and one (C10) died a mysterious death at the age of 30 years, before it could be determined whether he had inherited the disease. The eldest daughter (C1), now in her seventy-sixth year, suffers from advanced Huntington's chorea, and is subject to spasms of uncontrollable stubbornness and sharp temper.

The third youngest (C8) was admitted to the Brisbane Mental Hospital at the age of 61 years, after she had attacked her husband with a bottle. She thought he was being unfaithful to her, that he was poisoning her food, and that he was in league with a religious sect who were persecuting her. She had been cheerful and sociable until 10 years before her admission to hospital, but became increasingly suspicious during this period, and for two months before her admission was uncontrollably violent. At one time she had made an unsuccessful attempt to burn her house down. On her admission to hospital, her speech was slurred and mild choreiform movements were noted in both hands. Her gait was ataxic, and she was vague and confused, admitted hearing voices and often laughed incongruously. She was given electro-convulsive therapy, which resulted in a temporary remission of her mental symptoms.

The twins (C4 and C5), born in 1887, were identical in appearance, and this led to many schoolboy pranks in which one masqueraded as the other. They both reached a height of five feet five inches, and had the same fair complexion, light brown hair and blue eyes. As lads they were moody and short-tempered, and became worse as they grew older. In their early twenties they were jealous and suspicious of one another, and would argue and fight whenever they met. Years later, when they were brought together in the same ward at the Brisbane Mental Hospital, they fought so viciously that they had to be separated. They both left school at the age of 14 years. C4 worked on a few farms until the age of 22 years, when he took over a country mail-run. He continued in this job for 19 years, leaving to take up share-farming for his father. He had married a domineering woman who kept him reasonably subdued, and it was not until her sixth pregnancy that he started to develop paranoid ideas concerning her. Without justification he insisted that another man was the father of their twins, but this delusion did not unduly affect his behaviour. His twin brother, C5, had a few country jobs before starting a timber-carrying business, which brought him considerable wealth. His wife was a submissive, somewhat morose person, and as time passed he suspected she was having an affair with a soldier in the town. He had always been cautious of people's motives, slept with a revolver under his pillow for many years, and was easily provoked into assaulting his wife or anyone who crossed him. In 1937 their father intended selling the farm, and C5 decided that C4 did not have it in a fit condition for sale. Armed with a loaded gun and toy revolver, he set off for the farm to install a friend as the new share-farmer. The outcome was a vicious fight, and C5 left with his friend, the mission unsuccessful. The next morning C4 burnt down the homestead, and a neighbour who arrived on the scene found him admiring his efforts. "That's the best bloody smoke I have ever seen in my life", he commented. He readily admitted his guilt and was sentenced to 18 months' imprisonment. When he was released from jail, his wife and relatives would have nothing to do with him, and he lived a miserable existence until 1948, when he was committed to the Brisbane Mental Hospital. He was then aged 61 years, and displayed advanced choreiform movements of the head, neck, arms and hands. In addition his speech was indistinct and jerky, and he was unable to give a satisfactory account of himself. In the previous year (1947), C5 had threatened to burn his home down because his wife would not confess her illicit love affair. He was apprehended piling kerosene-soaked rubbish under his house, and committed to the Brisbane Mental Hospital before he could light the match. He displayed evidence of choreiform movements to the same degree as his brother, and in the same way involving speech and upper limbs predominantly. Likewise he was unable to say where he was or give an account of his past activities; his speech, however, was so indistinct that communication was impossible. In both cases the movements commenced at the age of 42 years. In 1953 the twins became extremely emaciated, developed bed sores, and gradually deteriorated; one died in this cachectic state in May and the other died in a similar manner three months later.

These twins, like Rosanoff's and Handy's, have a remarkably paralleled history, in respect to the onset and development of physical symptoms, mental symptoms, dementia and mode of death. They both had paranoid tendencies, both developed delusions concerning their wives' fidelity and both sought redress through arson. It is interesting to note that their sister also was similar in these respects. C4 was the less aggressive of the two, and his wife's domineering attitude may have forced him to become more restrained.

It is tempting to conclude that all these features must have been preordained by hereditary factors. However, it should be remembered that the tendency for twins to keep together, and their identical handling by parents, force a very similar early environment upon them, leading to identical emotional attitudes. As Southerland (1952) pointed out, twin studies in psychiatry which overlook a detailed investigation of the earlier years are of little help in separating nature from nurture.

Diagnosis.

The character, distribution and progress of the muscular movements in Huntington's chorea have been studied in obsessive detail by early nosographers, but their observations have been of little help in diagnosis. The chorea differs in no essential way from chorea due to other organic causes.

The correct diagnosis can be established only when the family history is known; yet often a careful interrogation fails to reveal any positive evidence, the patients and relatives denying its existence in an attempt to allay the anxiety they feel over this dreaded disease. It was their "extreme sensitivity" which dissuaded Osler from directly studying the Long Island family which Huntington described.

Pleydell (1954) suggested that reliable pedigrees should be obtained by public health authorities to assist in the diagnosis, and had this been carried out in Queensland, many of our cases would not have been repeatedly diagnosed as hysteria. Some of the common errors leading to this diagnosis are illustrated in the following example.

CASE II.—In 1941, a man, aged 36 years, while laying water pipes, fell several feet and fractured two vertebræ. He was given compensation for 12 months after leaving hospital, and returned to labouring work in 1943. He remembered the nurses' chiding him for not keeping still when plaster spicas were applied, and when compensation ceased he started to develop irregular movements of his legs over which he had no control. These gradually became worse, and extended to involve the trunk, face and arms, so that by 1950 he had developed slow, generalized involuntary movements.

He was admitted to hospital in 1951, and a history was obtained of a happily married man who was always a conscientious worker, had no obvious worries and took an active interest in local politics. No abnormalities other than the choreiform movements were detected on clinical examination, and on investigation the Wassermann reaction was negative, the X-ray appearances of the skull were normal, a full blood count revealed no abnormality and the erythrocyte sedimentation rate was normal. A diagnosis of hysteria ("compensation neurosis") was made, on the grounds that the movements were purposive, did not interfere with automatic actions and were increased with attention. He was treated with hypnosis, and improvement was noted to follow post-hypnotic suggestions of relaxation.

He was readmitted to hospital in 1953 in much the same condition as on the previous occasion, and once again diagnosed as suffering from hysteria; a medical officer had noticed him in a nearby hotel, and thought it significant that he could control his movements when drinking beer. Also it was noted that he did not move while asleep, and these observations were considered further evidence in favour of a functional diagnosis. An ether abreaction had a dramatic effect: he screamed, wept and shouted repeatedly "I'm not a bludger!";[1] this aroused suspicions that he was.

When he was readmitted to hospital again in 1954, the choreiform movements were more marked, and this time the information was extracted from a relative that the patient's mother had similar movements, and had died in the Brisbane Mental Hospital. After further inquiries, the family pedigree illustrated in Figure II was obtained, and a diagnosis of Huntington's chorea substantiated. His condition deteriorated rapidly, and he died in September, 1955; the relatives would not consent to an autopsy.

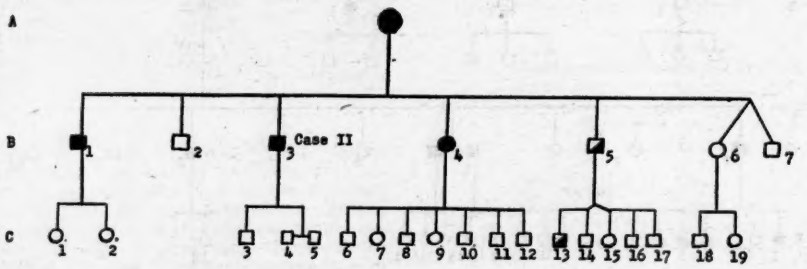

FIGURE II.

A, movements commenced at 32 years; paranoid ideas concerning her husband's fidelity; died at 73 years, one month after admission to mental hospital. B1, chorea noted at 48 years; admitted to inebriates' home; two admissions to mental hospital after attempts to kill his wife. B2, alcoholic. B4, chorea; "nervy"; unhappy marriage to gambler; living with another man. B5, aged 46 years, drinks heavily; war pension for "neurosis"; fidgety; has lived with three women. B6, psychoneurotic symptoms. B7, died in infancy. C10 and 11, committed to reformatory after conviction for stealing. C13, restless and fidgety; drinks heavily; irresponsible. C14, killed in accident. C17, has Sturge-Weber syndrome (nævoid amentia).

It should be more widely known that the movements vary with the emotional harmony of the patient, and are accentuated when he is upset, annoyed or anxious. Waters (1841) commented that "an honest patient informed me that the involuntary action of the muscles ceases under the influence of all instrumental music except the common Jew's Harp". This aspect of the disease makes the assessment of therapy difficult, and the latest fashionable drug, prescribed on the patient's admission to hospital, scores a success which should be more rightly ascribed to settling down in hospital.

After two or three drinks these patients are often accused of being drunk; the usual effect of alcohol is to accentuate the movements. The chorea almost invariably ceases during sleep, and many patients, even in the advanced stages of the disease, can maintain some measure of control over their movements. One middle-aged man with extensive involvement of the arms and hands is still able to hold down a job as a telephone mechanic. Another patient, whose generalized movements can become so severe that she has been jerked from her bed, can dampen down her contortions for brief periods by pressing her hands together and concentrating.

[1] Slang expression for malingerer.

Today one rarely sees the spectacular motor phenomena so commonly associated with hysteria which Charcot and his contemporaries described, and Jelliffe's comment in 1910 is now even more apposite: "There is a greater likelihood that so-called hysterical movements will turn out to be choreas than the reverse."

It is interesting to note that in all surveys a high percentage of patients had been misdiagnosed, usually with an alternative organic label: general paralysis of the insane, disseminated sclerosis, senile chorea, post-encephalitis or Sydenham's chorea.

Age of Onset.

Julia Bell determined in 460 cases the mean age at which choreiform movements were first noticed by the patient or relatives. This was found to be 35·51 ±0·39 years with a standard deviation of 12·38 ±0·28. As the symptoms are so insidious in onset, this figure must be most inaccurate. Several patients have commented that they had observed abnormal restlessness in their affected parent many years before the stated age of onset; for this reason it was not investigated in the present survey.

Mental Symptoms.

Perhaps in this disease we have been too preoccupied with statistical assessment, and have neglected the detailed study of individual cases so necessary in determining the relationship between the mental symptoms and chorea. At present, this relationship is most obscure. In some cases the development of the two appears to be intimately related, while in others mental symptoms never occur. Every variety of psychiatric syndrome has been observed in association with Huntington's chorea, and the only constant feature is deterioration of intelligence in the advanced states of the disease.

As in general paralysis of the insane, it can be concluded that dementia is a direct result of brain damage; but physical explanations are unsatisfactory to account for the psychological symptoms which may or may not occur.

Dementia, when present, is no different from dementia due to other causes. It is important to realize that the patient's difficulty in communication, due to impaired speech, may lead to the false assessment of deterioration, and several patients so stigmatized were found to be well orientated with memory unimpaired when patiently questioned.

Suspicions of varying intensity have been a common feature among the Queensland cases. In some these have developed into systematized delusions, and in others they are part of a more florid schizophrenic reaction. It would seem quite likely that these paranoid symptoms have developed as a reaction to the patient's increasing sensitivity as he becomes aware of his disability. It is possible that some patients, feeling that the odds are heavily against them, may adopt an attitude of *laissez-faire* and develop antisocial tendencies, but this fact would be difficult to establish.

Stengel (1954) wrote, somewhat flippantly, that "one could well imagine a stage in which Psycho-analytic research will be so deeply preoccupied with the exploration of those darkest areas of the individual's past, that the study of environmental influences will be left to others, perhaps to the geneticists, who have just emerged from their twin studies convinced believers in the importance of environmental factors in the origin of mental disorders".

Like so many others who have studied this disease, the importance of environmental factors has been forced upon me. The following example is by no means unusual.

CASE III.—A boy, aged eight years (whom I shall call John) attended the Brisbane Psychiatric Clinic in 1953. At that time he was frequently truanting from school, and nothing could induce him to attend regularly. He would not respond to discipline and was a restless, nervous child. He was still wetting the bed, was an inveterate nail-biter, chewed paper, and had a habit of rubbing his stomach. The psychologist who interviewed him felt that John was very disturbed, and considered that his emotional disturbance contributed strongly to his poor result on intelligence testing. (He achieved an intelligence quotient of 77 on a Wechsler intelligence test for children.) His mother, Mrs. C., would not accept help from us, and did not return until 1956, by which time his behaviour had become considerably worse. In the interval she had taken him to many doctors, but did not enter wholeheartedly into any suggested treatment. Now she was faced with the decision of sending him to a reformatory or a mental hospital, as the local police were tired of his antisocial conduct and were determined to get him out of their district. Many times they had to go searching for him when he ran away from home, and had frequently cautioned him over acts of wanton destruction (for example, he would go into a poultry yard, smash all the eggs and kill several hens). In addition he had stolen money from his parents, and refused to go to school.

Let us go into his mother's background in an attempt to explain John's conduct. She herself had a most unhappy childhood. Her mother (see Figure III, B1) had suffered from Huntington's chorea and was abnormal as far back as she can remember. She would fly into violent tempers and attack Mrs. C.'s father, who would be forced to call in the police for protection. This became such a regular feature that whenever he left the house she would run away and hide, and they resorted to calling the dog to sniff her out. The mother would accuse her husband of being intimate with her sister (B5, Figure III), who was living with them—and apparently not without reason. Mrs. C. can recall incidents which would confirm these suspicions. This sister was also a victim of Huntington's chorea and had shown suicidal tendencies; on two occasions Mrs. C. found her hanging from a rafter and had to release her.

When John's mother was aged 16 years, her parents and this suicidal aunt died within six months of each other, and she was left to fend for herself. Her brothers and sister had married and were not interested in looking after her, so she stayed with a succession of relations. At the age of 18 years she became pregnant, and forced a marriage with a somewhat reluctant suitor. John was the child who caused this unhappy alliance. They lived with Mr. C.'s mother, who proved to be even worse than the average mother-in-law, especially as she had unearthed the family pedigree and resented her son's marriage into such stock. When there were strangers present, it was common for her to bring up the fact that Mrs. C. had many relations in mental hospitals. But not only did she make Mrs. C.'s life a misery, she also made it difficult for her to rear John. Everything she did for the boy was wrong, and in the long run he would be punished just to appease the mother-in-law. This continued until 1954, when they moved into their own home. Mrs. C. then had to go to work to meet their excessive hire-purchase commitments, and John and his younger brother were left to care for themselves.

Mrs. C. is now aged 30 years, and shows no evidence of choreiform movements; she has submitted to sterilization. If she does develop chorea, are we justified in assuming that any associated mental symptoms are the expression of an organic cerebral disturbance, or are we to believe that environmental factors have played a contributory part? And if John matures into a fully-blown psychopath or finds his way to the Criminal Court, is this then due to emotional or physical factors? Most of us will agree that there is sufficient environmental stress in both cases to explain adequately the development of mental symptoms. It must be noted that the incidence of mental illness in non-affected siblings is also very high, and this is further evidence in support of an environmental causation.

Alcoholism.

The frequent occurrence of alcoholic addiction prior to the onset of choreiform movements has been thought to be of value in prediction; however, this symptom is equally as common in non-affected siblings. Fourteen Queensland patients were alcoholic prior to the development of chorea, and at least six well-known inebriate relatives have never shown any signs of the disease. It is interesting to note that half these 20 patients come from two families, and in both of these the mothers were choreic.

Suicide.

All investigators have noticed the high incidence of suicide in this disease, and it appears to be due to a wide variety of causes. It may be expected that knowledge of the true nature of the disease would lead younger members to suicide, but this has rarely been the case. However, the acts of bravery noted in choreic stock during the last two wars may have been the expression of disguised suicide.

In Julia Bell's survey, 13 cases of suicide were recorded in choreics and seven cases in unaffected members of choreic families. Minski and Guttmann (1938), who reviewed the literature and reported in detail 11 cases of successful or attempted suicide, noted that in the majority suicide was committed in an advanced stage of the disease. Of the four suicides recorded in the present survey, only one is known in sufficient detail for the motivation to be assessed. This case conforms with the theory advanced by Strauss (1956), who commented that although suicide is a psychiatric problem, it is perhaps even more a sociological, cultural or anthropological phenomenon. He noticed that an appreciable proportion of his patients who had seriously attempted suicide were old people, who regarded themselves as "useless mouths", and who had lost all sense of honourable group identity.

CASE IV.—Mr. D. was a quiet man, who worked conscientiously as a clerk in the one firm for 25 years. He always had "a chip on his shoulder" and was difficult to get on with, and trivial incidents with fellow employees would readily provoke him. For years he had been under medical care for asthma and "neurosis", and was referred to the clinic in 1956 at the age of 60 years when a diagnosis of Huntington's chorea was suspected. At that time he had advanced choreiform movements of the head, neck, limbs and trunk, speech was affected, and with difficulty a positive family history was obtained (Figure IV).

The patient was a likeable man who was very worried over his financial position. He had been dismissed from his job without superannuation, and what little savings he had accumulated were tied up in investments; this fact preventing him from obtaining a pension or Social Service benefits, and he had barely enough to keep going. For this reason he was strongly motivated to seek further employment, and said he would do anything, "even sweep gutters". He felt that working would have the added advantage of getting him away from home for a while, and this he believed would relieve his wife, who he thought was becoming most upset over his physical condition. This in fact was quite true, as she was repulsed by his constant fidgeting. She had denied him the marriage bed for the past 11 years, and after an argument six months previously, during which he had assaulted her, she slept in the bathroom—the only one she could keep securely locked. More recently she would walk away from the table in disgust when his writhings continued, and she looked on him as a fiend and potential murderer. He was not committed to an institution, for what would her friends say? They had been ostracized by the rest of the family, and indeed life was a misery for both of them.

The patient visited the employment department, and was advised that there would never be any prospects of working again. The following day he swallowed a fatal dose of hydrochloric acid. Autopsy confirmed the diagnosis of Huntington's chorea.

Crime.

After Bowlby's work (1952) on the significance of the mother-child relationship in the early years of life, it would be expected that if environmental factors were operating to produce antisocial conduct in Huntington's chorea, the fact would be more likely to show in the children of choreic mothers. The three Queensland patients with criminal records had choreic mothers who showed early evidence of the disease, and others with antisocial tendencies all have a history of inadequate mothering.

Two patients who were convicted of manslaughter in the Criminal Court show features of interest.

CASE V.—In August, 1954, E. was discussing his prowess as a boxer in an hotel bar, when an elderly bystander commented that he looked more like a madman than a boxer. E. followed this man into a lavatory and punched him, returned to finish his beer and went home. The old man died that evening, and E. was convicted of manslaughter.

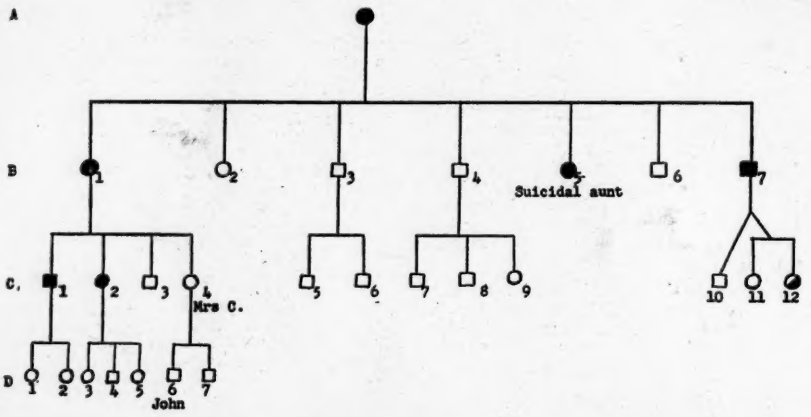

FIGURE III.
B6, suicided at 21 years. C10, illegitimate. C11, delinquent behaviour.

E. is from a Victorian family (Family "A", Case 5.10, Brothers, 1955), and it is noted that his mother suffered from chorea, having died when he was aged five years. In two choreic cousins "the mental symptoms were somewhat schizoid in nature and there was marked violent behaviour immediately prior to their admission to hospital". His brother was also admitted to a mental hospital, largely on account of his dangerous propensities towards his father. E.'s mother was admitted to a mental hospital shortly after his birth, and he was cared for in a children's home between the ages of six and nine years, returning home to be looked after by his father's housekeeper until the age of 14 years, when he joined the Merchant Navy. In June, 1953, his father forced his admission into a Victorian Mental Hospital, as he was truculent and quarrelsome especially after he had been drinking excessively, and this was a common occurrence. He was discharged in December that year and came to Brisbane. He was never interested in women and lived a solitary life, working as a labourer and spending his spare time drinking in second-rate hotels. Shortly after his conviction he was transferred to the Ipswich Mental Hospital, as it became obvious that he was mentally ill.

On examination, E. was withdrawn, spoke to hallucinatory voices and imagined a "pool system" was giving him a sex discharge by thought transmission. He was impulsively aggressive, and violently assaulted a male nurse soon after his admission. No change in these schizophrenic symptoms followed electro-convulsive therapy, and already he displays clumsy, uncontrolled movements of both arms, most marked early in the morning.

This patient was only a baby when his mother was admitted to a mental hospital, and for four years he was reared in an institution. It is my belief that it is unnecessary to postulate an hereditary predisposition to crime, or that the present symptoms are an early expression of Huntington's chorea, because there is obvious "maternal

deprivation"; this has been shown by at least six independent workers to lead to such antisocial behaviour.

CASE VI.—F. was born in a New South Wales country town in 1906 to a fencing contractor who died 16 years later. His mother developed Huntington's chorea while the patient was quite young, and this was complicated by associated mental symptoms necessitating certification some years later, with depressive symptoms which recurred as mania. As far back as he can remember his mother was moody and aggressive, and he was pleased to leave home at 14 years to seek his fortunes in Sydney. He had numerous factory jobs, and by 1931 was able to start his own business. The following year he married, and his wife has since borne him two children. In 1935 he came to Brisbane, and he has worked up a prosperous business; he is thus able to support a mistress and provide for his two illegitimate children.

Prior to 1951 he had come under the notice of the police on three occasions—once for shooting with intent, another time for assaulting a policeman, and on a third occasion for stealing Royal Australian Air Force equipment—but there were many other occasions when he could have answered to further charges. As he was impulsively aggressive, it was not unusual for him to strike anyone who crossed him in argument. When he applied for a permit for a firearm, the police wisely refused the application.

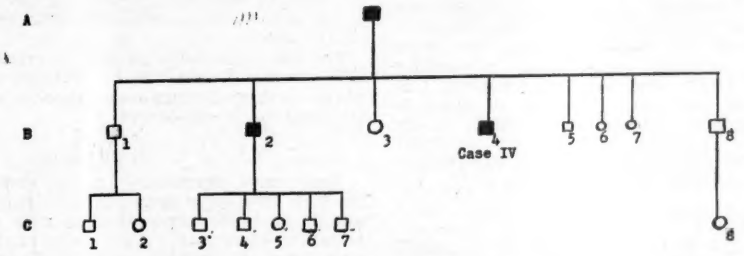

FIGURE IV.

A, alcoholic, separated from wife; choreiform movements for many years. B1, died at 41 years, nephritis. B2, alcoholic, separated from wife; choreiform movements since mid-thirties. B3, single. B5, 6 and 7, died in infancy. B8, drinks very heavily.

F. was well known among local residents as the reckless driver of an expensive powerful motor car, and he took the precaution of attaching a "caution" sign to his rear bumper-bar. This, however, would rarely be seen, as few motorists could drive with sufficient speed to get close enough to read this warning. One day, when motor ferries were running across the Brisbane river, he hurried to catch a departing ferry, and his vehicle finished up in the river. Employees, when offered the choice of riding in his car or the firm's open truck, would prefer the latter rather than risk their lives in comfort. In 1952 he hit an oncoming car, fracturing his right humerus. The previous year his car overturned while travelling at about 80 miles per hour; one passenger was thrown from the back seat and instantly killed, and a few months later another passenger died as a result of injuries sustained in the accident. F. himself escaped with only a fractured humerus and clavicle. He continued to drive, and there are many stories of his narrow escapes and dangerous risks. A local doctor, equally impulsive, and driving a similar model car, accepted his challenge on the treacherous highway between our Gold Coast and Brisbane. By the time they reached the city they were aggressively backing into one another when held up by traffic lights. In 1955 F. made a gross breach of traffic rules by crossing the double lines to pass a car. In the process he had to avoid hitting an oncoming vehicle, and bumped a motor cyclist while getting back into the correct laneway. The driver of the cycle was killed instantly, and for the first time F. was convicted of manslaughter and sentenced to five years' imprisonment. At last his driving licence has been suspended; but after twelve months in jail he is back in society. For many years he has displayed generalized choreiform movements, and when examined in prison showed early evidence of mental deterioration. There have been no overt psychotic features at any stage.

The mounting death rate from road accidents has become a major problem, and this extreme example should impress upon us that motor-cars driven by choreics can become "lethal weapons". As the movements become exaggerated in times of emotional stress, a worrying traffic problem will enhance the risk of an accident, and for this reason all choreics should be prohibited from driving.

Fecundity.

Many factors, such as community attitudes, occupation, intelligence, economic status and religious upbringing, operate when a couple decide on the number of children they will produce. Even then a large number will be born by accident rather than design, and these variables interact in such a complex way that any statistical analysis would give only a superficial assessment. On the gross reproduction rate ("Queensland Year Book", 1956), it is estimated that each married woman in Queensland has an average of 3·8 children.

In the assessment of fecundity in Huntington's chorea, two possible sources of error must be considered. Bearing in mind that symptoms have first been noticed in patients 60 years and older, at what age are we to state that a deceased member carried the gene? When doubtful cases have been excluded, another possible error is the changed mode of living in the Queensland cases, as they have gradually left their farms and taken up residence in the cities. It was common for pioneering families to have a large number of children, and the urban pattern over the last 40 years has been in favour of small families.

Reliable information was available on 183 offspring of 37 choreics and on 54 children of 18 unaffected siblings, and some interesting comparisons were noted. The choreics who lived in urban communities averaged only 2·8 children, while those from the country averaged 6·8 children. Prior to 1920 the choreic members had 6·4 children each (unaffected siblings 3·3 children), and since then have averaged only 3·2 children (unaffected siblings 2·3 children). Children born to choreic mothers averaged 6·0 compared with 4·2 for choreic fathers. It can thus be seen that the fecundity rate has been considerably influenced by social factors, and at the present time is lower than the average for our community.

In America, Reid and Palm (1951) estimated that the average number of children from affected individuals was 6·07 ±0·9 and from unaffected siblings 3·33 ±0·5—a statistically significant difference. They further analysed one family group and compared the number of descendants from a choreic with the number from an unaffected brother and a contemporary State governor. Of 898 living descendants, 80% were from the choreic, 18% from his brother and 2% from the governor.

Striking as this may seem, it does not enable us to make any generalizations concerning fecundity in this disease. The Queensland figures suggest that the reproductive rate is determined entirely on social factors rather than on any direct effect of the disease, as implied in their article.

Prediction.

It would be of profound eugenic importance to be able to predict the onset of Huntington's chorea early in life,

and much effort has been expended on this problem, so far without success. Five possible methods of approach can be considered.

The Assessment of Abnormal Muscle Movements.

Many relatives believe that abnormal restlessness is a forerunner of the disease, and importance should be placed on assessing the motor behaviour of choreics' children. However, it is difficult to put this assessment on an objective basis. In adolescence the growing child can be most awkward, and there is no means of differentiating normal clumsiness from that of the potential choreic. At a later age anxiety can produce restlessness in the normal sibling, which is indistinguishable from that of the early choreic. The Osoretski test of coordination was considered, but as this Spanish test has not been standardized in Australia, it was not employed. Keidan's sphygmomanometer test (1954), used to assess progress in Sydenham's chorea, produced no consistent abnormality. I was unable to observe the "incomplete motor efficiency" and the intermittent rigidity during passive movements which Reisch (1929) described as characteristic prechoreic signs.

The Assessment of Pre-morbid Personality.

This aspect was thoroughly studied by Minski and Guttmann, who have reviewed the literature. Their findings agree with those of Hughes and Davenport, who were unable to detect any universal premonitory personality features. Meadows (1955) discusses psychological test results in choreics, but had insufficient data on which to base any positive hypothesis concerning prediction. In the belief that the mental symptoms (apart from dementia) are not directly associated with the disease, it was thought that this method of approach would be valueless.

Determination of Alterations in the E.E.G.

Patterson, Bagchi and Test (1948) studied the E.E.G. changes in 26 offspring of choreics, 18 of whom were under the age of 20 years. They noted grossly abnormal patterns in 12 subjects whom they considered to be possible carriers of the gene. Harvald (1951) criticized their findings, commenting that the changes in the American series occurred mainly in the under 20 years age group, at which time minor E.E.G. changes must be assessed with certain reservations. He studied 25 offspring, and like Leese *et alii* (1952) was unable to confirm their findings in any detail. He concluded that it was not possible to predict the disease by means of E.E.G. records.

Linking of Genes.

Another suggested method of prediction is the linking of the gene for Huntington's chorea with another gene which can be readily assessed. To seek out two closely associated genes which will move together during cell division, is like looking for a needle in a haystack. If such a gene is found to be linked with the abnormal gene for Huntington's chorea (as in ovalocytosis), it will be a fortunate but fortuitous accident. Routine anthropometric and genetic investigation of subjects is of doubtful value, and I am unable to share the enthusiasm of others over the possible help of serological tests in prediction.

The Finding of a Biochemical Abnormality.

It has been repeatedly shown that in our preoccupation with a neurological lesion, an underlying general disorder has been overlooked, and perhaps this may prove true in Huntington's chorea. The basal ganglia appear to be particularly vulnerable to generalized disorders, as evidenced in hepato-lenticular degeneration, the neuropsychiatric syndrome in hepatic failure, *erythroblastosis fœtalis* and carbon monoxide poisoning. In the future it may be the biochemist who will provide a reorientation in this disease. Liver function tests and plasma electrophoretic examinations on a random sample of choreics revealed no consistent abnormalities, and post-mortem examination of one liver revealed normal concentration of copper and absence of manganese and cobalt. No constant hæmatological changes were found on full blood examination. The statement that polycythæmia is sometimes found in this disease (Primrose, 1952) cannot be traced to its source in the literature, nor can it be confirmed by examination of a small number of patients. There are no abnormalities in the cerebro-spinal fluid.

Marriage and Reproduction.

Bias is obvious in any discussion on eugenics, and in the literature on Huntington's chorea emotionally charged words creep in when this aspect is considered. The facts are clear. At the present time in Australia many children of choreics are unaware that they may be the carriers of an hereditary illness; others knowingly enter into marriage, living in the hope that they may be among the 50% who are to escape the disease.

Showing no stigma during their reproductive life, they procreate, only to become victims of the illness when they should be providing or caring for the family they have produced. These people will not be stopped from producing potential choreics by educational measures alone. As Kallmann (1953) has stated:

> In a democratic society which rejects compulsory methods of public health planning it would seem a mandatory obligation for public health authorities to make adequate provision for expert guidance on problems of marriage, parenthood and inheritance where it is needed and sought voluntarily by morally responsible people.

The only successful method of eradicating this untreatable chronic disease is by legislative measures, but of course other factors are involved when compulsory sterilization is considered.

Immigration.

Many have commented on the restless, wandering disposition frequently found in members of choreic families, and it is to be expected that with the present limited screening of migrants a few more of these abnormal genes will enter the country, and be allowed to multiply with democratic freedom. Let us hope that it will not be at the same alarming rate as the Tasmanian family, in which one person was responsible for 86 cases in five generations (Brothers, 1949).

Summary.

Observations have been made on several aspects of Huntington's chorea during a survey of the disease in Queensland.

Many cases had been diagnosed as hysteria, and errors leading to this diagnosis are discussed.

An example of Huntington's chorea in identical twins is outlined; both had similar physical and mental symptoms.

It is considered that the mental symptoms, apart from dementia, may be environmentally induced, and case histories have been detailed to support this argument.

Doubt is thrown on the common assumptions that choreics have an excessively high fecundity rate, and that this is a direct effect of the disease.

Investigations into prediction are critically assessed, and the social implications discussed.

The importance of an active interest in this disease by public health departments is stressed.

Acknowledgements.

This investigation has required the cooperation of many agencies and individuals; in particular I should like to thank the Department of Health and Home Affairs for permission to carry out the investigation and publish this report, Dr. B. F. R. Stafford (Director of Mental Hygiene) for his interest and encouragement, Miss J. Westcott, who did all the clerical and routine work, and Sister M. B. Jeffrey, who sought out the clinical records. I wish to thank the Criminal Investigation Branch of the Police Department, the Registrar-General's Department, the State Health Laboratory staff, the Professor of Physiology, University of Queensland, the Superintendent of the Brisbane General Hospital, the superintendents and staff of the

Queensland mental hospitals, and the Government Statistician for their cooperation; also the many medical practitioners, too numerous to mention individually, for the information they have so freely made available.

References.

BELL, J. (1934), "Nervous Diseases and Muscular Dystrophies. Part 1: Huntington's Chorea", "Treasury of Human Inheritance", Volume IV.

BICKFORD, J. A. R., and ELLISON, R. M. (1953), "The High Incidence of Huntington's Chorea in the Duchy of Cornwall", *J. Ment. Sci.*, 99: 291.

BOWLBY, J. (1952), "Maternal Care and Mental Health", WHO Monograph No. 2.

BROTHERS, C. R. D. (1949), "The History and Incidence of Huntington's Chorea in Tasmania", *Proc. Roy. Australasian Coll. Physicians*, 4: 48.

BROTHERS, C. R. D., and MEADOWS, A. W. (1955), "An Investigation of Huntington's Chorea in Victoria", *J. Ment. Sc.*, 101: 548.

BROTHERS, C. R. D., (1957), personal communication.

CRITCHLEY, M. J. (1934), "Huntington's Chorea and East Anglia", *J. State Med.*, 42: 575.

DAVENPORT, C. B., and MUNCEY, E. B. (1916), "Huntington's Chorea in Relation to Heredity and Eugenics", *Am. J. Insanity*, 73: 195.

FREUD, S. (1915), "A General Introduction to Psychoanalysis".

HARVALD, B. (1951), "On the Possibility of Predicting Huntington's Chorea by E.E.G. Study", *Am. J. Psychiat.*, 108: 295.

HUGHES, E. M. (1924), "The Social Significance of Huntington's Chorea", *Am. J. Psychiat.*, 4: 537.

HUNTINGTON, G. (1872), "On Chorea", *M. Surg. Reporter*, 26: 317.

JELLIFFE, S. E. (1910), "Diseases of the Nervous System", Lea & Febiger, Philadelphia.

KALLMANN, J. (1953), "Heredity in Health and Mental Disorder", Norton.

KEIDAN, S. E. (1954), "Progress in Rheumatic Chorea", *Lancet*, 1: 1220.

LEESE, S. M., POND, D. A., SHIELDS, J., and RACE, R. R. (1952), "A Pedigree of Huntington's Chorea", *Ann. Eugenics*, 17: 92.

LUND, J. C. (1859), quoted by Orbeck, A. L., and Quelprud, T., *loco citato.*

MUNSKI, L., and GUTTMANN, E. (1938), "Huntington's Chorea, A Study of 34 Families", *J. Ment. Sc.*, 84: 21.

ORBECK, A. L., and QUELPRUD, T. (1954), *"Setesdalarykka", Sybivad*, Oslo.

PARKER, N. (1956), "Huntington's Chorea in Queensland", Department of Mental Hygiene.

PATTERSON, R. M., BAGCHI, B. K., and TEST, A. (1948), "The Prediction of Huntington's Chorea", *Am. J. Psychiat.*, 104: 786.

PLEYDELL, M. J. (1954), "Huntington's Chorea in Northamptonshire", *Brit. M. J.*, 2: 112.

POPENOE, P., and BROUSSEAU, K. (1930), "Huntington's Chorea", *J. Heredity*, 21: 113.

PRIMROSE, D. A. (1952), "Polycythemia in Association with Hydrocephalus", *Lancet*, 2: 1111.

REID, S. G., and PALM, J. D. (1951), "Social Fitness versus Reproductive Fitness", *Science*, 113: 294.

REISCH, O. (1929), *"Studien an einer Huntington-Sippe", Arch. Psychiat.*, 86: 327.

ROSANOFF, A. J., and HANDY, L. M. (1935), "Huntington's Chorea in Twins", *Arch. Neur. & Psychiat.*, 23: 839.

RUSSELL, J. W. (1894), "Two Cases of Hereditary Chorea Occurring in Twins", *Birmingham M. Rev.*, 35: 31.

SPILLANE, J., and PHILLIPS, R. (1937), "Huntington's Chorea in South Wales", *Quart. J. Med.*, N.S., 6: 403.

SOUTHERLAND, J. D. (1952), "Psychological Medicine and the National Health Service", *Brit. J. M. Psychol.*, 25: 71.

STENGEL, E. (1954), "The Origins and Status of Dynamic Psychiatry", *Brit. J. M. Psychol.*, 27: 198.

STRAUSS, E. B. (1956), "Suicide", *Brit. M. J.*, 2: 818.

WATERS, C. O. (1841), quoted by Bell, J., *loco citato.*

CARCINOMA OF THE CERVIX: THE PLACE OF PELVIC EXENTERATION.[1]

By J. CAMERON LOXTON, M.B., B.S., M.R.C.O.G., F.R.C.S. (Edinburgh), F.R.A.C.S.,
Honorary Assistant Gynæcological Surgeon, Royal Prince Alfred Hospital, Sydney.

THE failure of conventional treatment—namely, radical surgery of the Wertheim type and radiotherapy—to deal effectively with advanced (League of Nations Stages III and IV) or recurrent cancer of the cervix, draws attention to the necessity of employing other methods if a worthwhile salvage is to be achieved in these late cases.

[1] Read at the Fourth Conference in Australia of the Royal College of Obstetricians and Gynæcologists on August 30, 1957, at Sydney.

The types of cancer therapy available are radical surgery, radiotherapy, hormone therapy and chemotherapy. Chemotherapy of cancer, at present in its infancy, may yet provide the answer to this problem. Hormone therapy appears to have little application in cervical cancer. Radiotherapy, popular during the past thirty-five years because of its expectation of cure without the ordeal or risks of operation, has failed to achieve satisfactory results in advanced cases (less than 5% of five-year survivals). Unfortunately, little is to be expected from its further development. The use of radioisotopes has a limited value as an adjunct to surgery. Super-voltage therapy, apart from its sparing effects upon the skin, has added nothing to the capacity to cure cancer. The maximum dosage which the tissues will tolerate can already be built up by conventional (250 kilovolt) machines. Too many cancers in this region are radio-resistant, and no amount of irradiation will cure them. To persist with radiation in the presence of cancer resistance is not only useless but dangerous; further damage to the tissues is inevitable, and if the treatment is persisted in will eventually result in massive necrosis, fistulæ and sepsis. Radiotherapy is particularly disappointing in the case of recurrent cancer following previous irradiation. A symposium on the treatment of recurrent cancer of the cervix held by the New York State Medical Association in March this year revealed that whereas surgery had achieved a 35% five-year survival rate in a consecutive series of 72 "failed irradiation" cases,

TABLE I.

Recurrent Carcinoma of the Cervix: Symposium, New York State Medical Association, March 1957.

Patients.	Five-Year Survivors.	Surgical Mortality.
Irradiation failures treated by irradiation (29)[1]	4 (14%)	—
Surgical failures treated by surgery (50)	16 (32%)	24·0%
Irradiation failures treated by surgery (72)	25 (35%)	7·3%

[1] Biopsy not universally performed.

TABLE II.

Pelvic Exenteration: Lymph Node Involvement (Dr. L. Parsons).

Result.	Total Number.	Lymph Nodes Involved.	Lymph Nodes Not Involved.
Death before two years	20	13	7
Death after two years	7	3	4
Survival for more than five years	16	1	15
Total	43	17 (40%)	26 (60%)

radiotherapy at best could achieve only a doubtful 14% in 29 cases (Table I), I say "doubtful", because in these cases routine biopsy was not carried out. Diagnosis by any other means is unacceptable. It would therefore appear that in the present state of our knowledge surgery alone offers any hope of improving these results.

Limited extension of the Wertheim operation to include partial resection of the bladder, etc., is of little value, and is nearly always followed by recurrence. Implantation of stenosed or obstructed ureters into the colon, without removal of the growth, does not sufficiently prolong life. To be worth while the surgical attack in advanced cases must be maximal. This usually involves removal of the bladder or rectum or both, as well as the pelvic lymph nodes, peritoneum and structures in the pelvic floor.

Recent advances in surgical technique and supportive therapy have brought operations of this magnitude within the bounds of practicability. The use of isolated intestinal segments as substitutes for the urinary bladder, and the

adoption of rubber or plastic containers which are sealed to the skin with plastic cement, have overcome many of the difficulties in after-care.

The operations employed for the treatment of carcinoma of the cervix at the Memorial Hospital for Cancer and Allied Diseases in New York are as follows:

Non-exenterative procedures:

Schautar operation.

Wertheim operation with or without node dissection.

Radical hysterectomy with complete pelvic node dissection (Brunschwig).

Exenterative procedures:

(i) Partial exenteration: anterior exenteration with uretero-colic anastomosis; anterior exenteration with ilial bladder; anterior exenteration with rectal bladder; anterior exenteration with cutaneous ureterostomy; posterior exenteration with colostomy.

(ii) Total exenteration: total exenteration with wet colostomy; total exenteration with ileal bladder; total exenteration with cutaneous ureterostomy.

Metastectomy:

Omentectomy, bowel resection, nephrectomy, partial hepatectomy and hemi-pelvectomy, etc.

Each one of these procedures has its application to the particular circumstances revealed at operation. This depends mainly upon the direction and extent of spread of the cancerous growth, the state of the urinary tract, and the patient's capacity to withstand a long operation. Decisions of this nature can be taken only after the surgeon is in possession of all the facts, which means at operation and then usually only after examination of frozen sections.

TABLE III.

Survival After Pelvic Exenteration: Memorial Hospital (Dr. A. Brunschwig), September, 1947, to January, 1955.

Survival Period. (Years.)	Number of Cases.	Surgical Mortality.	Survival.
5	111	18·0%	15·3%
3	192	15·1%	22·9%
1	291	16·9%	44·7%

The indication for pelvic exenteration is that the growth shall have extended beyond the limits of the genital tract and the endo-pelvic connective tissue immediately surrounding it, to involve the bladder and ureters or the rectum, or both. According to Dr. Alexander Brunschwig of New York, little importance is attached to the patient's age or general condition. Deficiencies in the latter can usually be rectified pre-operatively. The only real proviso is that the disease is still confined to the pelvis. Autopsy findings in subjects dead of carcinoma of the cervix show that about 75% die while the disease is still confined to the pelvis. Langdon Parsons of Boston has found pelvic lymph-node involvement in only 40% of advanced cases; in 60%, therefore, the lymph nodes are histologically free of involvement (Table II). It is undoubtedly these two factors which make the operation feasible.

Dr. Brunschwig and Dr. Parsons both state that the patients most suitable for this operation are those in whom the growth is centrally placed or has extended in an antero-posterior direction rather than laterally to the side walls of the pelvis, and in the case of the latter the growth should be focal rather than nodal.

Ultra-radical surgery, so-called, owes its origin to Dr. Brunschwig, who in December, 1946, performed the first total pelvic exenteration. As might have been expected, this work initially received rather a mixed reception. Dr. Brunschwig was much applauded in some quarters and much maligned in others. There were some who considered that these operations exceeded the bounds of propriety. Such appears to be the case in many of our major revolutionary changes—anæsthesia, antisepsis, and now ultra-radical surgery of cancer. However, the work is no longer in its experimental stage, has been widely received and is being carried out in many centres in the United States, to some extent in the United Kingdom, and more recently in Australia.

Amongst the various figures published, the largest series are those of Dr. Brunschwig and Dr. Parsons. In Dr. Brunschwig's unit at the Memorial Hospital up till January, 1955, in a series of minimally selected cases 441 exenterations had been performed for pelvic cancer, of which 336 were for carcinoma of the cervix (Table III). Of the patients, 111 had been operated on more than five years earlier, with a three-year survival rate of 22·9%, a five-year survival rate of 15·3%, and a surgical mortality (death within 30 days of operation) of 18%. Since then some improvement has been noted. Up till January, 1957, 503 exenterations had been performed, with a three-year survival rate of approximately 30%, a five-year survival rate of 19% and a surgical mortality of 18% (Table IV).

TABLE IV.

Survival After Pelvic Exenteration: Memorial Hospital (Dr. A. Brunschwig), Present Status of 503 Patients.

Results.	Up to January, 1957.
Three-year survivals	30%
Five-year survivals	19%
Surgical mortality	18%

In June, 1955, at the seventy-eighth annual meeting of the American Gynæcological Society, which I had the honour to attend as a guest, Dr. Langdon Parsons of Boston discussed longevity following pelvic exenteration. In his series of 116 exenterations for pelvic cancer, in which selection had been exercised, 86 were for carcinoma of the cervix. Of these patients, 63 had been operated on more than two years previously and 23, or 37%, had survived for two years. Of 28 patients operated on more than five years previously, seven, or 25%, had survived for five years. His surgical mortality (death within two months of operation) was 28%. It is now clear that with careful selection a very worthwhile salvage of advanced cases can be achieved by ultra-radical surgery.

TABLE V.

Primary Surgery—Carcinoma of the Cervix Confined to the Pelvis: Memorial Hospital (Dr. A. Brunschwig).[1]

Stage of Growth.	Number of Patients.	Five-Year Survivors.
Stage I	127	100 (79%)
Stage II	146	73 (50%)
Stage III	36	8 (22%)
Stage IV	32	6 (19%)
Unclassified	7	3 (43%)
Total ..	348	190 (55%)

[1] Surgical mortality, four out of 348 cases (1·2%).

The overall achievement of surgery is well shown in Dr. Brunschwig's latest figures, which were embodied in a paper delivered at the last International Congress on Cancer held at Turin, Italy, in June, 1957 (Table V). Though as yet unpublished, they were kindly forwarded to me by Dr. Brunschwig himself. These figures relate to a series of cases in which surgery was employed primarily as the only method of treatment in an unselected, consecutive series of cases of cancer confined to the pelvis, and in which practically no medical contraindications were recognized.

When the first exenteration operations were carried out it was not expected that anything more than palliation for a limited period could be attained. That effective palliation, prolonged survival and five-year cure in a fair proportion

of cases have been achieved, is now an established fact. The great majority of patients have been returned to a normal, productive and happy existence. The management of their "ostomies", bags, etc., has been carried out with a minimum of inconvenience. The contents of the bag, which are always fluid, are emptied into the lavatory every four or five hours by removing a rubber ring from its lower end. The bags are changed every two days or so by the patient herself, and the procedure is simple and takes only one or two minutes. With the use of a rubberized, non-irritating solution there is no irritation of the skin, no leak, no smell, and the bag is inconspicuous beneath the ordinary clothing.

It is my experience that after receiving a full explanation of what is entailed, these patients readily submit to operation and to the necessary alteration in bodily function, rather than remain in the pitiable circumstances in which they find themselves. Mental adjustment is rapid, and they quickly return to normal life. The statement "I would rather die than have an 'ostomy'" is the statement of a person not suffering from cancer. It is only too well known that these patients do not die in peace.

In preparing this paper I have yielded somewhat to the popular demand for figures. However, personal observation and experience are of greater value. Figures do not take into consideration relief of pain and suffering, recovery from emaciation and the bed-ridden state and the reawakening of hope from mental despondency. In those cases in which recurrence ultimately leads to a fatal termination, death occurs under much less distressing circumstances and is usually devoid of pain.

The value of this work is well established. The results are already better than those anticipated. With careful selection they could be better still. It is exacting. A high degree of surgical skill is called for. There are many tests of the surgeon's courage, many disappointments. But, as in all things difficult, the sense of achievement is great.

Acknowledgements.

During the early part of 1957, as holder of a Clinical Fellowship in Cancer awarded by the New South Wales State Cancer Council on the recommendation of the Post-Graduate Committee in Medicine in the University of Sydney, I spent three months at the Memorial Hospital for Cancer and Allied Diseases in New York, under the guidance of Dr. Alexander Brunschwig. This paper is based on my observations during this period, and on a small personal series of cases.

References.

BRUNSCHWIG, A. (1948), "Complete Excision of Pelvic Viscera for Advanced Carcinoma", *Cancer*, 1: 177.

BRUNSCHWIG, A., and DANIEL, W. (1956), "Evaluation of Pelvic Exenteration for Advanced Cancer of the Cervix", *Surg., Gynec. & Obst.*, 103: 337.

LOXTON, J. C. (1956), "Total Pelvic Exenteration in the Treatment of Recurrent Carcinoma of the Cervix", M. J. AUSTRALIA, 1: 1045.

PARSONS, L., and TAYLOR, M. (1955), "Longevity following Pelvic Exenteration for Carcinoma of the Cervix", *Am. J. Obst. & Gynec.*, 70: 774.

Reports of Cases.

GLUCAGON IN INSULIN THERAPY.

By JOHN M. COLLINS, M.B., B.S., D.P.M., AND Z. SEGLENIEKS, M.B., B.S.,
Northfield Mental Hospital, Adelaide.

THE use of glucagon for the termination of insulin comas is of comparatively recent origin. Glucagon is a naturally occurring hormone, and there is considerable interest and speculation as to its possible metabolic roles. At this hospital we were supplied with 40 milligrammes by Lilly and Company, U.S.A. In view of our limited supplies, we decided to evaluate the drug by comparing its coma-terminating properties with those of glucose given intravenously and sucrose given by gavage on the same patient. The latter was a male paranoid schizophrenic, aged 35 years, in good physical condition, and going into comas fairly regularly during the third hour on doses of 100 units of insulin. He was receiving insulin coma treatment five days each week.

Clinical Record.

The patient was first stabilized on this dosage of insulin. The comatose state was then interrupted after approximately 45 to 50 minutes on successive days by the intravenous administration of four milligrammes of glucagon, 300 grammes of sucrose given by gavage, and the intravenous administration of 50 cubic centimetres of 50% glucose solution respectively. At the time of interruption of the coma, the patient was in the third or fourth stage according to the criteria of Himwich (Himwich, 1944). The blood sugar levels were estimated just prior to interruption, and 10, 20 and 40 minutes after interruption. There were slight variations in the timing of the withdrawals due to technical reasons. On the days when the coma was interrupted by glucose given intravenously, and usually when interrupted by glucagon given intravenously, it was found necessary to give the patient sugared tea and sandwiches between the 20 minute and 40 minute blood samples, as otherwise he would certainly have relapsed into coma. The morning tea consisted of tea sugared with four teaspoons of table sugar and a round of sandwiches with meat or cheese filling; it was approximately constant from day to day. The interrupting dosage of glucagon was chosen on the basis of a communication from Dr. J. L. Schulman, of the Johns Hopkins Hospital, Baltimore. The glucagon used was the crystalline variety and supplied in a strength of one milligramme per millilitre. The interruptions and subsequent blood sugar determinations were carried out on eight occasions by each method.

The average blood sugar levels just prior to interruption of coma and the average blood sugar levels, 10 minutes (B in graph), 20 minutes (C) and 40 minutes (D), after the interruption of coma by the three methods (I, II and III) are shown in Table I and Figure I.

The blood sugar determinations were all carried out by the Folin-Wu method by the same technician at the same laboratory.

Discussion.

After the intravenous administration of glucose, the rise of blood sugar level is rapid but transient. The rise in the level following the intravenous administration of glucagon is gradual and of a similar nature to that following sucrose given by gavage. However, there is a greater tendency for the blood sugar levels to drop away after the use of glucagon than after sucrose by gavage (see Figure I). On the first day, C to D was a rise of only six milligrammes per 100 millilitres, while on the second day C to D showed a rise of 14 milligrammes per 100 millilitres. Had it not been for the morning tea, on the first day the reading D would have been lower than the reading C. This "drop away", although not so sharp as after the intravenous administration of glucose, means that one disadvantage in the use of glucagon in the routine termination of insulin coma is the necessity of making the patient take food shortly after being roused lest he lapse back into coma. It was found clinically that after the intravenous administration of glucagon the patient's coma lightened perceptively within five minutes, and he was awake in five to 15 minutes. However, the awakening was not so rapid after glucagon as it was after glucose given intravenously. A slow awakening is held by Sakel to be advantageous (Sakel, 1938), but this is not uniformly held (Sargant and Slater, 1954). Many patients dislike the slow awakening after nasal interruption of coma, during which psychotic symptoms such as fear and suspicion may become florid. In comparison with the intravenous administration of glucose, there are several advantages in the use of glucagon—namely, decreased volume of injection, decreased viscosity, and absence of local reactions such as thrombosis at the site of injection.

In this case there did not appear to be any real advantages as compared with interruption by gavage.

TABLE I.

Method of Interrupting Coma.	Average Blood Sugar Levels. (Milligrammes per 100 Millilitres.)				
	Prior to Interruption of Coma.	10 Minutes after Interruption.	20 Minutes after Interruption.	Morning Tea.	40 Minutes after Interruption.
I. Glucagon, 4 milligrammes, given intravenously	31	46	63	+	69
II. Sucrose, 300 grammes, given by gavage	31	63	97	+	111
III. Glucose, 50 millilitres of 50% solution, given intravenously	31	112	70	+	55

Theoretical advantages are as follows: (i) Decreased weight gain during the course of insulin coma therapy. Since we are employing the patient's own glucose to terminate the coma, this may prove to be true. We could not, of course, substantiate this. (ii) Decreased incidence of gastro-intestinal disturbances and decreased danger of aspiration of gastric contents. These factors did not cause any trouble with this patient, but they are very real dangers.

We had insufficient glucagon to test the effects of glucagon given intramuscularly. This latter route would be preferable if glucagon was used for the routine termination of insulin coma, as it could be given by nurses.

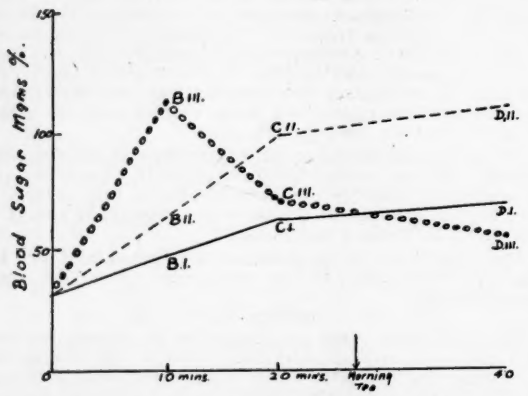

FIGURE I.

Blood sugar levels: solid line, after glucogen given intravenously; interrupted line, after sucrose given by gavage; circles, after 50% glucose solution given intravenously. For explanation of letters see text. Roman numerals indicate days.

Summary.

1. The blood sugar levels of a patient in insulin coma were taken 10, 20 and 40 minutes after interruption of coma with four milligrammes of glucagon given intravenously, 300 grammes of sucrose given by gavage, and 50 millilitres of 50% glucose solution given intravenously. The results are shown in Table I and graphically in Figure I.

2. The absence of both local and general untoward effects from glucagon is noted.

3. Four milligrammes of crystalline glucagon given intravenously proved a satisfactory method of terminating the insulin comas induced in this man. However, sucrose given by gavage was found just as satisfactory.

Acknowledgements.

We are indebted to Dr. H. M. Birch, Superintendent of Mental Institutions, South Australia, for criticism of this paper and permission to publish it.

References.

HIMWICH, H. E. (1944), "The Physiology of the 'Shock' Therapies", *Psychiat. Quart.*, 18: 357.

SAKEL, M. (1938), "The Nature and Origin of the Hypoglycæmic Treatment of Psychoses", *Am. J. Psychiat.*, 94: 24.

SARGANT, W., and SLATER, E. (1954), "Physical Methods of Treatment in Psychiatry", 3rd Edition.

SCHULMAN, J. L., personal communication.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Livingstone The Doctor: His Life and Travels", by Michael Gelfand, O.B.E., M.D., F.R.C.P., with a foreword by C. Hely-Hutchinson; 1957. Oxford: Basil Blackwell. 8¾" × 5½", pp. 155, with 19 illustrations and four maps. Price: 62s. (English).

The essentially medical side of the life of a great missionary doctor and explorer.

"Dental Survey of State School Children in New South Wales, January, 1954-June, 1955", by P. D. Barnard, B.D.S.; 1956. National Health and Medical Research Council Special Report Series No. 8. 9½" × 6", pp. 69, with illustrations. Price not stated.

The results of a survey financed by the National Health and Medical Research Council of Australia.

"The Lower Urinary Tract in Childhood: Some Correlated Clinical and Roentgenologic Observations", by Sven Roland Kjellberg, Nils Olof Ericsson and Ulf Rudhe; 1957. Chicago: The Year Book Publishers, Inc. 10" × 7", pp. 310, with 265 illustrations. Price: $18.00.

Based on clinical and roentgenological studies of 1155 cases of lower urinary tract disorder investigated at the Pædiatric Clinic of Karolinska Sjukhuset, Stockholm.

"Statistica e Sociologia Sanitaria", by Giovanni L'Eltore, E. Caranti, O. Ceino, V. Marchiano and V. Rustuchelli; Eleventh Edition; 1956. Rome. 9¾" × 6¾", pp. 162, with many illustrations. Price not stated.

Contains 10 articles on various aspects of the health statistics and sociology. The main text is in Italian, but each article has a summary in English.

"Textbook of Medical Treatment", by Various Authors, edited by D. M. Dunlop, B.A. (Oxon.), M.D., F.R.C.P. (Ed.), F.R.C.P. (Lond.), Sir Stanley Davidson, B.A. (Camb.), M.D., F.R.C.P. (Ed.), F.R.C.P. (Lond.), M.D. (Oslo), and S. Alstead, M.D., F.R.C.P. (Ed.), F.R.C.P. (Lond.), P.R.F.P.S.; Seventh Edition; 1958. Edinburgh and London: E. and S. Livingstone, Limited. 9¾" × 6¼", pp. 943, with illustrations. Price: 55s. (English).

The book has been thoroughly revised and partly rewritten.

"The Physiologic Basis of Gastrointestinal Therapy: Selected Topics", by Heinrich Necheles, M.D., Ph.D., F.A.C.P., and Martin M. Kirshen, M.D., F.A.C.P.; 1957. New York and London: Grune and Stratton. 8¾" × 5½", pp. 336. Price: $8.75.

The result of 25 years' experience in teaching undergraduate and post-graduate students.

"Deafness, Mutism and Mental Deficiency in Children", by Louis Minski; 1957. London: William Heinemann (Medical Books), Limited. 7¼" × 4¾", pp. 90, with 13 illustrations. Price: 12s. 6d. (English).

Deals particularly with the diagnostic problems between children with mental defect and those who are deaf and maladjusted or have no speech and are deaf.

The Medical Journal of Australia

SATURDAY, MARCH 15, 1958.

RECENT ACTIVITIES OF THE WORLD HEALTH ORGANIZATION.

In the years since the end of the second World War the World Health Organization, which is one of the largest of the specialized agencies of the United Nations, has made a profound impression in the field of public health throughout the world. Essentially a governmental agency, WHO is governed by the World Health Assembly, to which each member country may send a delegation and non-members may send observers. Assembly decisions are carried out by an executive board, composed of members designated by each of 18 elected countries. These board members act not as representatives of their countries, but as technicians working for WHO as a whole. The work, with its vast scope, has wisely been decentralized, and there are now six regional offices: for Africa, for the Americas, for South-East Asia, for Europe, for the Eastern Mediterranean and for the Western Pacific.

The last-mentioned of these regions includes Australia and the territories that it controls to the north and to the east. The regional office is in Manila, but the region is divided into three areas, one of which, that for the South Pacific, has its headquarters in Sydney. This South Pacific area includes Australia, New Zealand, Papua and New Guinea, West New Guinea and the Australian, French, New Zealand, United Kingdom and United States island territories in the South and West Pacific. The work of WHO in the Western Pacific region has followed that in the other regions as its basic purpose: "To strengthen the national health services so that all peoples may attain the highest possible level of health." There is no one common outstanding health problem for the whole region, but most of the usual health problems are represented, especially in the less developed areas. Attention has been given to malaria, tuberculosis, yaws and other communicable diseases, maternal and child health, the training of nurses, the promotion of mental health, the health education of the public, the assistance of environmental sanitation services, and various matters to do with education and training of health personnel. Details of recent activity in the region and of the various current projects will be found in the most recently published Annual Report of the Director-General.[1]

This report of the Director-General provides full information on the various activities of WHO throughout the world during 1956, and makes abundantly clear just how extensive those activities have been. An important field has been the control of communicable diseases, and here a great deal has been accomplished. As the result of a resolution of the Eighth World Health Assembly several years ago, WHO has adopted a policy aimed at the eventual eradication of malaria, and in this considerable progress has been made. Other conditions for which the policy is one of eradication are endemic syphilis, yaws and smallpox. The report indicates the progress in this regard, and in particular the spectacular impression that has been made on the incidence of yaws. At the same time, the report does not attempt to minimize the problem still to be solved before the world-wide eradication of any of these diseases can be achieved. Technical knowledge and public health methods now available are effective, but their successful use depends on administration, training of personnel, sound technical application and adequate financial support. The report points out that knowledge of most other communicable diseases has not reached the point where eradication can be considered; but a beginning has been made towards their control. The development of a vaccine against poliomyelitis has been a dramatic achievement, and it appears from limited experience that, for countries with a high incidence of the paralytic form of the disease, the vaccine is an effective means of reducing the serious consequences of infection. Certain questions about its safety are still not fully resolved, and it is not yet clear whether it may be superseded by living attenuated virus vaccines. The efficacy of hyperimmune serum in the management of rabies has been demonstrated. The discovery of sulphone drugs effective against leprosy has improved the prospects for its control, and in other ways the outlook in relation to this disease is more hopeful. Tuberculosis is still a serious world problem. Recent reports confirm that BCG vaccination has a real effect in reducing the incidence of tuberculosis, including the adult type of infectious pulmonary disease, but it must be combined with a programme of case-finding and treatment if the disease is to be brought under control.

In describing the work of WHO on these and other communicable diseases, the report emphasizes the importance of thorough and comprehensive planning in the development of an effective programme. For example, the experience of the Organization has shown that the application of a new control measure, or the adaptation of an established technique to different conditions, requires careful pilot studies if success is to be ensured. Emphasis is laid, above all, on WHO's role of coordinating research. This is described in the report as "the real backbone of the various activities through which the Organization is

[1] "The Work of WHO, 1956; Annual Report of the Director-General to the World Health Assembly and to the United Nations." Official Records of the World Health Organization. 11" x 8½", pp. 246, with illustrations. Price: 10s.

striving to promote world health". It is further pointed out that the organization of public health services is being governed increasingly by the concept of integrated services, as distinct from services separately provided in specific limited fields. Thus, joint undertakings, relating, for example, to nutrition, maternal and child health and health education, are becoming more common and their benefits more widely recognized.

The scope of the report will be seen from a brief reference to its composition. Part I consists of a general review, covering, in separate chapters, communicable diseases, public health services, environmental sanitation, education and training, atomic energy in relation to health, epidemiology and health statistics, drugs and other therapeutic substances, publications and reference services, public information and constitutional, financial and administrative developments. Part II provides details of the work being undertaken in each of the six regions. Part III describes the cooperation that WHO has achieved with a variety of other organizations, most of which are on the world level. Part IV consists of a detailed list of projects in operation in 1956.

The work of WHO must be beset with many practical difficulties, and the considerable success that it has achieved must be attributed not just to efficient administrative and technical work at the central and regional level. A great deal of the credit must go to the many men and women at the periphery, for a substantial number of whom their work is, in a real sense, a vocation. To reach the real heart of the world health problem today, the pioneering and missionary spirit is still important; though not as obviously necessary as it was in a former day, when devoted individuals undertook it, very often with little or no support from the base—and certainly not with the backing of an organization such as WHO. Working conditions can still be difficult, and many obstacles exist to the attainment of standards compatible with the high level of scientific medicine in the modern world. For a task so great as that undertaken by WHO, epidemiological and health statistics are of great practical importance, and it will come as a shock to many people in more highly developed areas to realize that, for most of the population of the world, adequate health statistics do not exist "because of lack of physicians for diagnosis and of administrative machinery for recording". Reliable health statistics are available for the whole of only some 30 countries, and for selected towns in a few others, although WHO has a membership of 88 countries. Unhappily, but not surprisingly, the statistics for the areas with the greatest health needs are insufficient to call attention to those needs. For that reason the report points out that WHO must aid countries to set up or improve their health statistical machinery before it can use statistics in determining where its help can most effectively be applied. The practising medical profession throughout the world will undoubtedly wish WHO well in this, and can be expected to cooperate to the full in all the vital work of the Organization relating to preventive medicine and public health, just as through the World Medical Association it has welcomed the cooperation of WHO in the organization of the world conferences on medical education.

Current Comment.

SIR GEORGE BUCKSTON BROWNE.

Two centuries ago Lord Chesterfield made this observation: "We are, in truth, more than half what we are by imitation. The great point is, to choose good models and to study them with care." The validity of this helpful maxim is well illustrated in an interesting biography[1] of Sir George Buckston Browne, a distinguished London surgeon, who reached the top of the professional tree without the blessing or the higher diploma of the Royal College of Surgeons of England. He had become bitterly estranged from the College at the very beginning of his long career, but later on he graciously overlooked his grievance, and returned good for evil by giving away the substantial proceeds of his phenomenal success in private practice for the benefit of science and for special research within the College.

The striking feature of this careful study of a remarkably fine character—published under the joint authorship of Miss Jessie Dobson, curator of the Hunterian Museum, and Sir Cecil Wakeley, a past president of the Royal College of Surgeons—is the struggle of a promising medical student to please the fastidious examiners of his day, and then to shine as a specialist in his profession by straight dealing, by all-round efficiency in his work, and by the acquisition of knowledge and expert skill in the new department of urological surgery. The unavailing efforts of this keen young novitiate to secure official academic recognition of his true surgical potentialities reads as a sad commentary on the English medical education of last century.

When Browne qualified in 1874, with the diploma of membership of the Royal College of Surgeons, he was already a competent practitioner of the new Listerian principles in his surgical work at University College Hospital, but was ineligible for appointment to the surgical staff of any London public hospital. Taking opportunity by the forelock, he decided to accept the invitation of Sir Henry Thompson, the famous urological surgeon (whose biography we reviewed some years ago[2]), to become his private assistant at a salary of £200 a year, with the right to see a few patients of his own in the spare time available after his regular duties had been completed. It speaks volumes for the forbearance, selflessness and humility of the young assistant that he remained loyal and consistently reliable in the service of that parsimonious, irritable and egotistical genius of the Victorian era, quietly imbibing the essentials of an entirely new specialty and perfecting his own operative techniques. However, the growing responsibilities of a family, an insubstantial bank balance and an established reputation as a competent urological surgeon, at last impelled him to take the final plunge and purchase a dilapidated house at 80 Wimpole Street, where he commenced practice on his own account as a general surgeon with exceptional experience in urology.

In the presentation of this illuminating biography, the authors have shown perspicacity in quoting extensively from autobiographical notes written by Buckston Browne shortly before his death in January, 1945, at the age of 95 years. Like his model, the late Sir Henry Thompson, he came from a strict nonconformist family, was a man of wide general culture, made his own contributions to the knowledge of urological surgery, developed a fine style in literary composition, became an acknowledged expert as a collector and in his sound appreciation of the fine arts, and towards the end was induced to write a fascinating story of his life. He worked amicably with Thompson

[1] "Sir George Buckston Browne", by Jessie Dobson, B.A., M.Sc., and Sir Cecil Wakeley, Bt., K.B.E., C.B., LL.D., D.Sc., F.R.C.S., F.R.A.C.S., F.A.C.S., with a foreword by Emeritus Professor Sir Harry Platt, LL.D., M.D., M.S., F.R.C.S., F.A.C.S.; 1957. Edinburgh and London: E. and S. Livingstone, Limited. 8¾" × 6¼", pp. 152, with 28 illustrations. Price: 25s. (English).

[2] M. J. AUSTRALIA, 1951, 2:600 (November 3).

throughout his long apprenticeship, and he was grateful to his master for giving him the start he had always wished for; but the two men were entirely different in character and disposition. Browne was generous to a fault, was meticulous in the observance of the highest principles and ethics of his profession, and at once gained the respect, confidence and affection of all his colleagues and patients.

CONGENITAL HEREDITARY RETINOPATHY DUE TO AN AUSTOSOMAL RECESSIVE GENE.

IN a recent comment in these columns[1] on the description by Sjögren and Larsson of a new syndrome, reference was made to some special features of Swedish demography and the brilliant manner in which the Swedish school of geneticists has used them to study recessive inheritance. Sjögren and Larsson described a syndrome, characterized by oligophrenia, ichthyosis and pyramidal tract spastic paralysis of the Little type and always presenting as a complete syndrome, which was due to a recessive gene. Carl Henry Alström and Olof Olson[2] now present a study of *heredo-retinopathia congenitalis*, which has a clinical variability contrasting with that of the disease studied by Sjögren and Larsson.

Sjögren in 1945 drew Alström's attention to cases of congenital retino-choroiditis, which had a familial incidence and was associated with a high proportion of first cousin, or other consanguineous, marriages in the parents. Alström secured the cooperation of Olson, who made a comprehensive inventory of all patients admitted to the Tomteboda Institute (for the education of the blind), and then the two authors studied all patients with retino-choroiditis, congenital blindness and impaired sight generally in the absence of known cause. They were able to define a series of cases characterized by congenital defect of sight with scanty or no fundus changes and without neuropsychiatric or endocrinological complications. It was finally shown that the disease occurred familially in siblings, that consanguineous marriages were common in the parents and that, although cases occurred throughout Sweden, they were especially concentrated in certain regions and about a quarter of all cases belonged to a few large family complexes. No text-book condition was entirely compatible with the syndrome described, although in some of Leber's cases, described in 1869, the subjects may have had this syndrome.

Notification of blindness and education of the blind have been compulsory since 1897 in Sweden, and of 1132 pupils admitted to Tomteboda since that time, 624 (55%) were totally or partially blind at birth. About 10% of all cases of blindness appeared to be due to this newly described syndrome; so that in Sweden, at any rate, it cannot be considered a rarity.

The disease picture is variable, but a constant feature is a defect, presumably congenital, of vision consisting of either total amaurosis or greatly impaired sight with loss of central vision. As a rule there is gradual deterioration in any remaining vision. The primary functional defect is in the retinal elements. In youth, sparse uncharacteristic retinal pigmentations, generally diagnosed as "retino-choroiditis", are usually observed. These changes progress with age and are followed by atrophy, so that after fifty years of age white patches of sclera may be exposed. Visible fundal changes may be absent, but may appear later and progress. Cataract and keratoconus are common, and increase in frequency and severity with age. Keratoconus is particularly valuable as a diagnostic sign. The pathological gene acts on the tissues forming retina, lens and cornea. Choroid atrophy is possibly secondary. The variability in symptoms may be due to modifying genes. Such is known to be the case in other diseases. (Modifying genes are known at an elementary level in genetics, for they are responsible for spoiling the otherwise simple and instructive theory of the inheritance of eye colour.) In Sweden, the gene frequency for the disease may be six per thousand and the incidence of the disease about thirty per million births. The gene lies on an autosome. The authors comment that most of the work on the elucidation of the pathogenesis remains to be done.

[1] M. J. AUSTRALIA, 1958, 1: 219 (February 15).

[2] "Heredo-Retinopathia Congenitalis: Monohybrida Recessiva Autosomalis: A Genetical-Statistical Study", by Carl Henry Alström, in clinical collaboration with Olof Oslon; 1957. Lund: Printed by Berlingska Boktryckeriet. 9¼" × 7", pp. 183, with three illustrations. No price stated.

MILK HYGIENE.

MILK and milk products, if not produced under hygienic conditions, may lead to disease in the human consumers. Milk hygiene measures therefore embrace the health of milk-producing animals, sanitary practices in the production, handling and processing of milk and milk products, treatment for the destruction of pathogens in the milk, and protection against subsequent contamination of the product. These measures are considered in a recent report issued by the World Health Organization,[1] in which attention is concentrated on hygiene problems relating to cow and buffalo milk and, to a lesser extent, goat milk. The report points out that, although the same general principles are basic to dairy hygiene the world over, their application must necessarily vary widely from country to country, because of the broad range of local conditions. Emphasis is placed on simple, yet effective, measures, which will provide the maximum benefit to public health for the effort expended.

At the outset of the report, it is stressed that there can be no assurance as to the safety of fluid milk and of many milk products without effective heat treatment of the raw product and subsequent protection against contamination. After emphasizing the importance of efforts on the farm to protect the milk from external contamination, the report goes on to discuss the major communicable diseases transmissible to man through milk. The general principle of subjecting all milk destined for human consumption to adequate heat treatment is strongly recommended, as a proven safeguard against the transmission of disease. Attention is drawn to the vexing problem caused by the use of antibiotics in the treatment and control of mastitis in milk-producing animals. It is advocated that milk from cattle given antibiotics by intramammary infusion should be excluded from the general supply for at least the first two milkings after therapy and, where possible, for a period of 48 to 72 hours thereafter. It is noted that the value of pasteurization for the protection of human health is now amply established, and that sterilized milk has the advantage of prolonged keeping quality; in hot climates, especially, this form has great utility.

The direct sale of milk from the farmer to the consumer and the retailing of milk by itinerant pedlars are unhygienic practices that are both deprecated. Nevertheless, the difficulty of enforcing their prohibition in areas where the milk demand exceeds the supply is recognized, and the report confines itself to recommending that, wherever control measures are easier, as in large municipalities, direct sales of this kind should be banned as soon as recognized suppliers are able to meet the needs.

Countries considering the promulgation of milk hygiene legislation are reminded that the legislation adopted should be appropriate to the existing legal structure, the stages of development of the milk industry and milk hygiene practices, the economic status, and the major problems and public health needs of the country. Extreme measures should be avoided. Also, education in the underlying reasons for specific requirements must precede enforcement. In some countries the dairy industry itself has adopted measures designed to control milk quality. Activities of this nature can, it is considered, be a valuable adjunct to official milk hygiene programmes, and the full cooperation of the official agency is advocated.

[1] "Joint FAO/WHO Expert Committee on Milk Hygiene: First Report", published jointly by FAO and WHO and issued also as "FAO Agricultural Studies, No. 40"; 1957. Geneva: World Health Organization. 9¼" × 6¼", pp. 55. Price: 3s. 6d.

Abstracts from Medical Literature.

PHYSIOLOGY.

Heat Loss from the Head.

G. FROESE AND A. C. BURTON (*J. Appl. Physiol.*, March, 1957) report that a simple gradient calorimeter was developed for measurements of non-evaporative heat loss from the head; it was used on three subjects, with heads unprotected but bodies adequately clothed, at temperatures between 32° C. and 21° C. It was found that at —4° C. the heat loss from the head may amount to half the total resting heat production of the man. The insulation of the tissues of the head was calculated to be about 0·4 clo[1] unit, and it did not change with the external temperature. To see if it would change if there was general vasoconstriction or vasodilatation, a second series of experiments was carried out at temperatures of (*a*) 10° C. with the subjects unclothed; (*b*) 20 °C. with the subjects clothed; and (*c*) 29 °C. with the subjects clothed and with a heating pad on the chest. While the tissue insulation of the finger increased by a factor of six times in (*a*) compared with (*b*), that of the head was constant. In (*c*) the tissue insulation of the head decreased slightly, indicating slight vasodilatation. The importance of insulation of the head in the cold to extend the tolerance time is pointed out by practical examples.

Oxygen Consumption and Rectal Temperature During Exposure to Cold.

P. F. IAMPIETRO, D. E. BASS AND E. R. BUSKIRK (*J. Appl. Physiol.*, May, 1957) report that the effects of continuous cold stress on patterns of daily oxygen consumption and rectal temperature were studied in five men. Cold stress studies consisted in the subjects living continuously in a chamber at a temperature of 60° F. for 14 days, wearing only shorts and with minimal physical activity. Resting oxygen consumption and rectal temperatures were measured at 8 a.m., 12 noon, 4 p.m. and 8 p.m. The cold period was preceded and followed by living for two weeks at 80° F. Activity and dietary composition were the same for all periods. Resting oxygen consumption during warm periods exhibited gradual and characteristic increases during the day. This pattern was also found during cold exposure, but at a higher level; oxygen consumption in the cold was 20% higher at 8 a.m., 16% higher at 12 noon, 16% higher at 4 p.m., and 11% higher at 8 p.m. than at corresponding hours during control periods. Basal metabolic rate did not change throughout the experiment. Rectal temperatures at noon, 4 p.m. and 8 p.m. throughout the cold period did not differ from those at 80° F. Rectal temperatures at 8 a.m. were significantly higher in the cold than at 80° F. The results indicate that rectal temperature was well maintained during cold exposure, and oxygen consumption appeared to respond in such a fashion as to subserve this maintenance.

[1] An arbitrary unit of thermal insulation, used in aviation medicine to express the thermal insulation value of clothing.

Water and Electrolyte Changes at High Altitudes.

E. NARVAES AND K. MARKLEY (*J. Appl. Physiol.*, May, 1957) report that in a study of 20 normal Peruvian men and women living at an altitude of 12,240 feet above sea-level, plasma sodium and chloride were found to be increased, while plasma bicarbonate decreased and plasma potassium was unchanged as compared with the corresponding values at sea-level. In 18 natives of the high altitude zone undergoing elective surgery for abdominal conditions, the post-operative responses to surgical stress as measured by hæmatocrit, plasma and urinary electrolytes, and by water and ion balance studies, were quite similar to the alterations reported at sea level in Peru and in other countries. All patients withstood major abdominal surgery well, and were discharged from hospital symptomatically improved.

Saline Therapy in Tourniquet Shock.

R. A. ANDREE, D. W. WINGARD AND S. KILETSKY (*Am. J. Physiol.*, September, 1957) report that tourniquet shock in rats was treated by saline infusions ranging in amount from 6% to 25% of body weight. The 6% infusions gave temporary improvement and prolonged life but did not prevent death. With 12% infusions about half the animals survived the acute stage of shock. When the quantity of saline was equal to 18% of body weight, the results were excellent and 84% of animals survived the shock state. Survival was not improved when the infusion amounted to 25% of body weight. The success of saline therapy in tourniquet shock was clearly dependent on the volume of fluid employed. A huge quantity of saline was required to obtain saturation of the tremendous œdema potential in the injured leg and also to provide a surplus for retention in the circulation with relief of hypovolæmia and hæmoconcentration.

A Regulator of Thirst.

G. J. GILBERT (*Am. J. Physiol.*, November, 1957) reports that electrocoagulative destruction of the subcommissural area in rats results, within a few days, in death due to dehydration. Subcutaneous injection of aqueous extracts of rat or beef subcommissural area tissue into rats resulted in sharp depression of water consumption, with a rise in intake on the second day. Control injections employing extracts of rat or beef cerebrum failed to alter water intake. The addition of 0·25% acetic acid destroys this hormonal activity, as does shaking with ether or petroleum ether. It is suggested that the active substance may be a large, readily denatured protein. When these subcommissural extracts were injected into either adrenalectomized or hypophysectomized rats, the response differed markedly from that observed in normal animals. Intake of water fell 40% to 50% on the first day, and there was no return to normal levels of water consumption on the second day; recovery, if it occurred, was a gradual process.

Ciliary Action in the Lower Respiratory Tract.

A. C. HILDING (*Am. J. Physiol.*, November, 1957) reports that ciliary streaming in the bronchial tree follows a definite system. Flow begins at the level of the respiratory bronchioles in a very wide stream-bed (metres in total width). The stream-bed narrows rapidly until, when the trachea is reached, it is only some 50 millimetres in width. A continuously increasing volume of mucus, furnished by the glands throughout the bronchial tree, is added to the stream as it flows toward the larynx. With the stream-bed becoming progressively and sharply narrower, this means that the depth of the mucous blanket or the velocity of flow must increase greatly. *En route* from the periphery toward the larynx, many obstructions are encountered in the form of tributary bronchial openings. At such obstructions, the mucous blanket passes to the margin of the opening and then divides into two parts that flow in almost opposite directions around the bronchial openings. The direction of ciliary beat changes where bronchial openings are encountered. Sometimes retardation of flow or actual stasis occurs in the centre of the lip where division takes place. This may take the form of a whirlpool. Where several bronchi join very close together, the ciliary stream-bed may be reduced to a few millimetres. Islands of cells devoid of cilia occur in the tracheobronchial tree.

Heat Regulation in Sloths.

P. F. SCHOLANDER AND J. KROG (*J. Appl. Physiol.*, May, 1957) report that in the sloth, a few other terrestrial mammals and several aquatic mammals, the limbs and tail are provided with arteriovenous bundles (*retia*) where 20 to 40, or sometimes several hundred small arteries and veins run parallel and intermingled. Obviously, heat exchange must take place in such a structure. The basic temperature relations in a simple countercurrent heat exchange system have been described and verified on a physical model. A striking feature of such a system is the poor conduction of heat and the consequent steep temperature gradient along the line flow. Temperature measurements in the *rete* of the sloth revealed gradients sometimes as large as one degree per centimetre, i.e. some 30 times steeper than in a human arm. The gradient immediately decreased when the venous return was reduced, proving the existence of arterio-venous heat transfer. Legs and arms developed steep subcutaneous gradients upon cooling of the body. It took some four hours to rewarm a moderately chilled limb to normal temperature. In two other tropical animals (coati and white-faced monkey) without *retia*, the arms regained their warmth after chilling five times faster. Hot wire measurements indicated that flow often decreased in the arm *rete* when a sloth was chilled. At the same

time the *rete* gradient steepened. The sloth is a temperature-sensitive animal which is just able to keep warm in the tropics, and the *retia* in sloths and other mammals are interpreted as structures which conserve the body heat at the expense of cooling the limbs.

Fat Absorption in Pancreatic Disease.

K. REEMTSMA *et alii* (*Surgery*, July, 1957) describe a test of pancreatic function based on comparative absorption of fat and fatty acid. They found that patients with "pure" pancreatic deficiency (due to surgical removal of the pancreas, obstruction of the pancreatic duct or fibrous replacement of the pancreas) showed marked impairment of fat absorption but normal fatty acid absorption. Patients with malabsorption due to causes other than pancreatic deficiency (in conditions such as sprue, regional enteritis or intestinal lipodystrophy) showed marked impairment of both fat and fatty acid absorption. Patients with fibrocystic disease of the pancreas showed a pattern unlike "pure" pancreatic deficiency but similar to the group with malabsorption of non-pancreatic origin. They describe a simplified version of the test based on the percentage of the administered dose present in the blood-stream four hours after ingestion. The test is suggested for clinical use in differential diagnosis of malabsorption states.

BIOCHEMISTRY.

Theobromine and Caffeine.

H. CORNISH AND A. CHRISTMAN (*J. Biol. Chem.*, September, 1957) have carried out experiments in which two human subjects, after suitable control periods on diets low in methylated purines, received one-gramme doses of theobromine, theophylline and caffeine. During the subsequent 48 hours 62% of the theobromine, 77% of the theophylline and 66% of the caffeine were excreted in the form of methylxanthines and methyluric acids. The major part of the theobromine was excreted as methylxanthines. In contrast, the methyluric acids were the predominant excretory products of theophylline. After caffeine administration, approximately equal amounts of the methylxanthines and methyluric acids were present in the urine.

Ascorbic Acid.

L. SALOMON (*J. Biol. Chem.*, September, 1957) has investigated the effect of toxin stress and scurvy on the rate of catabolism of ascorbic acid. The rate of catabolism followed first-order kinetics in normal, scorbutic and diphtheria-intoxicated guinea-pigs. The rate constants for the catabolism of ascorbic acid in intact guinea-pigs were unaffected by the level of body ascorbic acid or toxin stress. The evidence indicated that the biological half-life of ascorbic acid in the guinea-pig is neither decreased in stress nor increased in scurvy. Regardless of the magnitude of the body ascorbic acid level, a definite fraction per day was lost by the animal, this predictable quantity being independent of the test conditions employed. Depletion of body ascorbic acid at the time of impaired dentine formation was calculated to average about 69%. At the time of the appearance of gross symptoms of scurvy, the body level will not be much more than one milligramme per kilogram of body weight. When fed a 30-milligramme daily oral ascorbic acid supplement per kilogram of body weight, a level of approximately 40 milligrammes per kilogram is established in male guinea-pigs.

Adrenal Insufficiency.

D. HINGERTY (*Biochem. J.*, July, 1957) has shown that certain disturbances of carbohydrate metabolism seen in adrenalectomized rats can be brought about by raising the muscle magnesium content of intact rats to the level found in adrenal insufficiency. In both conditions there is a marked fall in the glucose-6-phosphate content, and there is an increase of phosphocreatine. There is also, in both conditions, some increase of adenosine triphosphate. The evidence is in accordance with the hypothesis that the increased magnesium levels occurring in adrenal insufficiency are largely responsible, through inhibition of certain enzyme activities, for the metabolic disturbances present in this condition.

Carcinoma.

P. J. FODOR *et alii* (*Arch. Biochem.*, October, 1957) have studied some aspects of the metabolism of regressing tumours. Glycolysis by homogenates from regressing tumours, in terms of lactic acid production, is reduced by an average of 54% when these are compared with homogenates from non-regressing tumours. This decrease is due to a sharp rise of the ATPase levels in the regressing tumour homogenates. Addition of fluoride, an ATPase inhibitor, will completely restore glycolysis to levels comparable with those given by homogenates from non-regressing tumours under identical conditions.

Ferritin.

S. GREEN AND A. MAZUR (*J. Biol. Chem.*, September, 1957) have studied the relationship of liver xanthine dehydrogenase, acting as a reducing agent for ferritin iron, to the release of iron into the plasma for extra hæmoglobin synthesis by the bone marrow under conditions of low oxygen tension. The reduction (and release) of ferritin iron during anaerobic incubation of ferritin with rat liver slices is due to the accumulation of uric acid in the tissue and its diffusion into the medium. Accumulation in anaerobic liver of uric acid precursors, hypoxanthine and xanthine, together with the marked sensitivity to low oxygen tensions of uricase as compared with xanthine oxidase, accounts for the elevated levels of uric acid. Xanthine oxidase, prepared from milk or calf liver, is also capable of reducing ferritin iron under anaerobic conditions in the presence of oxygen and by the addition of catalase. Ferritin iron reduction is due to the activity of xanthine dehydrogenase, the iron of ferritin acting as an electron acceptor. Although other flavoprotein enzymes can reduce ferritin iron, e.g. reduced TPN-cytochrome C reductase, the role of xanthine dehydrogenase in the release of ferritin iron *in vivo* is substantiated by findings obtained with intact animals. Rats subjected to hæmorrhagic hypotension show abnormally high concentrations of uric acid in the plasma. These results, together with the increases in plasma iron, reported previously for dogs in hæmorrhagic shock, serve to relate the xanthine dehydrogenase system with the iron release mechanism.

Vitamin D.

H. DE LUCA *et alii* (*J. Biol. Chem.*, September, 1957) have shown that vitamin *D* added to a non-rhachitogenic as well as to a rhachitogenic diet of rats greatly reduced the oxidation of citrate by kidney mitochondria in the presence of a phosphate acceptor (hexokinase-glucose). It produced a similar reduction with α-isocitrate, but either slight or no reduction with α-ketoglutarate, glutamate, succinate, β-hydroxybutyrate, and with pyruvate in the presence of oxalacetate. With all these substrates vitamin *D* had no effect on the efficiency of phosphorylation coupled to their oxidations. The reduction in citrate oxidation apparently was not due to an increase in the calcium content of the mitochondria, since mitochondria prepared in sucrose with the addition of ethylenediaminetetracetate did not prevent the reduction. In contrast to the results obtained with kidney mitochondria, the results with liver mitochondria showed that additions of vitamin *D* to the diet had no effect on the oxidation of citrate and α-ketoglutarate. Similarly, it had no effect on the phosphorylations coupled to these oxidations.

Steroids.

H. SALHANICK AND D. L. BERLINER (*J. Biol. Chem.*, August, 1957) have isolated and identified steroids from a feminizing adrenal carcinoma. Preliminary hydrolysis of the tissue with sodium hydroxide was found to be five to 10 times more effective than extraction with warm acetone. Progesterone and equilenin were isolated and identified; six other steroids were studied, but their structures could not be elucidated. It is suggested that urinary study of pregnanediol and equilenin-like steroids would be of diagnostic value in patients suspected to have secretory tumours of this type.

H. S. HIRSCH *et alii* (*Arch. Biochem.*, September, 1957) have reported on excretion of steroids. The entire excreta from babies during the first few days after birth were extracted and analysed for neutral steroids related to hormonal function. Material giving the Zimmermann reaction was found in the ketonic fraction, but no reaction with the antimony trichloride reaction of Pincus was obtained. The non-ketonic fraction gave the antimony trichloride reaction. Both the ketonic Zimmermann-positive and the non-ketonic antimony trichloride-positive substances decreased to very low levels during the first 10 days after birth. The material responsible for the colour reaction in the non-ketonic fraction was identified as androstane-3α, 17β-diol, probably a metabolic product of compounds formed in the fœtal adrenal cortex.

Brush Up Your Medicine.

THE COMMON OCULAR COMPLICATIONS OF SOME OF THE ACUTE INFECTIOUS DISEASES.

IT is fortunate that seldom does any serious long-term ocular disability follow any of the acute infectious diseases, but all of them may involve the eye in some way. The involvement may be (*a*) part of the disease process, such as the conjunctivitis of measles, (*b*) a primary involvement of the ocular tissue, such as the dacryoadenitis which may occur with mumps, or (*c*) a sequela such as the ocular muscle paresis due to neuritis following diphtheria of the upper part of the respiratory tract.

Chickenpox.

In chickenpox, the vesicles often involve the eyelids and gross œdema results. The secretions should be bathed away with saline, cold packs should be applied to reduce the swelling, and an antibiotic should be used to reduce secondary infection which could result in scarring and trichiasis. Occasionally a small phlyctenular pustule may form on the conjunctiva; it responds well to the local application of antibiotics. Limbal or corneal lesions are rare in chickenpox, but can result in violent keratitis; such patients are best immediately referred to an ophthalmic surgeon, their treatment being the administration of a mydriatic, an antibiotic and possibly cortisone. If uveitis should occur with chickenpox, it may leave depigmented patches on the iris. Its treatment is the exhibition of a mydriatic and cortisone.

Diphtheria.

In diphtheria, the ocular infection is usually secondary to naso-pharyngeal involvement, but it can be present as the primary focus. The conjunctivitis is usually membranous in form, but may be catarrhal. The lids are swollen and hard, and can easily become gangrenous in debilitated subjects. Diphtheria antiserum should be given systemically and locally, as well as "Chloromycetin".

The toxic neuritis following diphtheria may cause palsies of the intraocular and/or extraocular muscles. Paralysis of accommodation often results from disturbances of the intraocular muscles. In paresis of the extraocular muscles, surgery should never be considered, since the paralysis clears up in time; but it may be necessary to occlude the eyes alternately to relieve the confusing diplopia resulting.

Measles.

As has already been stated, conjunctivitis, usually of the catarrhal type, is an invariable accompaniment of measles. Usually before the rash appears the conjunctiva becomes red, and a mucopurulent discharge is present, corresponding to similar changes in the upper part of the respiratory tract, and Koplik's spots may be present on it. Photophobia may be present, owing to a concomitant involvement of the cornea. When the skin commences to peel, the condition clears up immediately. The treatment consists of the observance of cleanliness, the bathing away of secretions and the application of a bland antiseptic ointment. The last-mentioned has a threefold action: it helps to prevent secondary infection; it helps to relieve the corneal irritation, and it helps to prevent the lids from becoming stuck together by the secretions during sleep. If the photophobia should be troublesome, the patient can be made more comfortable by wearing dark glasses or by darkening of the room. If the patient is debilitated or if treatment is neglected, chronic blepharo-conjunctivitis may follow, or even keratitis and corneal ulceration. The distaste for reading or close work during and after an attack of measles is often due to a temporary disturbance of accommodation.

A rare complication of measles is uveitis; treatment is, as usual, the employment of a mydriatic and perhaps cortisone.

Mumps.

Mumps sometimes presents as acute dacryoadenitis. This is not surprising when one remembers the similarity in histological structure between salivary and lachrymal glands. If the lachrymal glands should be involved, usually the swelling is bilateral and may precede the parotid swellings. Occasionally one finds dilated conjunctival blood vessels and chemosis (œdema) of the bulbar conjunctiva. Mumps resolves in spite of treatment, although convalescent serum is useful in preventing complications. Occasionally one may find a transient optic neuritis or uveitis, but these are rare in mumps.

Rubella.

In rubella, catarrhal conjunctivitis usually accompanies the coryza which precedes the rash. The secretions should be gently bathed away, and if necessary, an antibiotic ointment may be prescribed to prevent secondary infections and sticking together of the lids during sleep.

The most serious ocular complications of rubella are, of course, the "rubella cataract" and retinitis of the newborn resulting from German measles in the mother during the first trimester of pregnancy. These may also be accompanied by aural and cardiac abnormalities. These were the observations of Sir Norman McAlister Gregg after the severe epidemic of the late 1930's. Such abnormalities can best be prevented by endeavouring to infect all females with rubella during their school days, or by giving convalescent serum to any expectant mothers exposed to infection early in their pregnancies, if they have not certainly had rubella previously.

Scarlet Fever.

Scarlet fever is always accompanied by conjunctivitis which is usually catarrhal in type, but it can be membranous or pseudomembranous. The eyelids themselves may be involved in the rash, with resulting palpebral œdema, which can proceed to cellulitis of the lids and even gangrene. In this case large systemic doses of antibiotics are called for. Local treatment may add to the patient's comfort by preventing the lids from sticking together. Often the conjunctivitis flares up again during the stage of desquamation. Alopecia of the lids may result when the patient has recovered.

Corneal involvement is rare in scarlatina. If uveitis should occur, it may, like that of the other exanthemata, result in depigmented patches on the iris.

Whooping-Cough.

Ocular hæmorrhages are the commonest reason why the ophthalmologist is asked to see a patient suffering from whooping-cough. These are fortunately nearly always subconjunctival and hence of no serious consequence. The treatment is reassurance of the patient and relatives. Amaurosis of short duration occasionally occurs during whooping-cough between the fourth and sixth weeks.

Other Infectious Diseases.

There are two serious sequelæ which may follow any of the acute infections. Encephalitis may result in a disturbance of any of the ocular reflexes, or in paresis of any of the intraocular or extraocular muscles. The pupils are usually dilated, and papilloedema or congestion of the disk is common. If extraocular paresis should occur, the patient will, if not too ill, complain of diplopia; if so, the eyes should be occluded alternately until the muscle actions become normal again.

Often parents will affirm that since an attack of one of the acute infectious diseases their child has developed a squint. On examination one will find concomitant strabismus with no paresis of any of the extraocular muscles. What has occurred in these cases is that a latent squint or phoria has broken down or become manifest while the child was debilitated. No matter how young the child, he should be placed in the care of an ophthalmic surgeon, so that amblyopia may be prevented and normal binocular reflexes be reestablished as soon as possible.

G. C. T. BURFITT-WILLIAMS.

Sydney.

British Medical Association.

VICTORIAN BRANCH: SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on October 12, 1957, at the Geelong and District Hospital. The first part of the meeting took the form of a series of clinical demonstrations by the members of the honorary medical staff of the hospital. The meeting was concluded by the reading of two papers.

Familial Acholuric Jaundice.

DR. J. M. AGAR showed a girl, aged 18 years, who had had attacks of painless jaundice every year since the age of five

years. The attacks lasted five to seven days and usually occurred in September, but she was also slightly icteric at other times. The urine was bile-stained in the attack, but the stools were not clay-coloured. She was well between attacks. Her father had a similar condition, but his family history was not known. The patient had no siblings.

On examination of the patient, a small, firm, uniform enlargement of the thyroid was found. Investigation of the heart revealed a systolic murmur at all areas. The spleen was palpable two fingers' breadth below the costal margin. A blood count gave the following information: the hæmoglobin value was 89% (12·8 grammes *per centum*) and the erythrocytes numbered 3,500,000 per cubic millimetre; the leucocytes numbered 9000 per cubic millimetre, 68% being neutrophils, 23% lymphocytes, 8% monocytes and 1% eosinophils. The erythrocytes varied moderately in shape and size; many showed a marked degree of spherocytosis, but they were well hæmoglobinized, 3% were reticulocytes and platelets were plentiful. The differential leucocyte count was within normal limits. The red cell fragility test showed that hæmolysis commenced in 0·7% of saline solution and was complete in a 0·34% solution; the corresponding normal figures were 0·4% and 0·3%. The serum bilirubin content was 2·4 milligrammes per 100 millilitres.

Digital Artery Occlusion.

DR. O. P. BURGER showed a man, aged 56 years, suffering from a circulatory disorder; he had had cold feet for years, and his fingers were occasionally affected. On examination of the patient, the toes of both feet were cold and blue when the legs were dependent. There was no capillary pulsation, but *dorsalis pedis* pulsation was very strong. The condition was considered to be a manifestation of Raynaud's disease.

Intrapelvic Rupture of the Urethra.

Dr. Burger's next patient was a man, aged 20 years, who had sustained a crushing injury, in which the pelvis was fractured and the urethra torn, but the bladder remained intact. Treatment was complicated by the pulling out of a self-retaining catheter by a one-pound weight overcoming the spincter. Urethral patency was satisfactory with occasional dilatation. The patient was impotent.

Dr. Burger finally showed a man, aged 35 years, who had sustained a crushing injury to the pelvis; the urethra was torn and the bladder was ruptured extraperitoneally. Convalescence was satisfactory. Urethrography revealed abnormal appearances suggesting that a false passage or a diverticulum might be present. The bladder was drained for a short time after operation. Dilatation was required, periodically, but function was good. The patient was impotent.

Malignant Osteoclastoma of the Femur and Malignant Melanoma of the Hand.

DR. J. K. BORS showed a married woman, aged 63 years, who had been examined on June 29, 1951, because of a dull ache in the area of the right lateral femoral condyle, of approximately two months' duration, aggravated by exercise and slightly relieved by rest. On examination of the patient, slight tenderness was present over the right lateral femoral condyle, with possible slight swelling of that area. No other abnormality was detected in the right knee, the remainder of the skeleton, the thyroid or the breasts; there were no clinical features referable to the urinary system. General physical examination revealed no abnormality. An X-ray examination of the lower end of the right femur revealed a cystic appearance of the lateral condyle of the right femur, consistent with the radiological appearance of osteoclastoma. An X-ray examination of the chest revealed no abnormality, and the Wassermann test produced a negative reaction. A blood examination revealed no abnormality in the erythrocytes or the leucocytes; the calcium and phosphorus contents of the blood were normal. Neither the Mantoux test nor the Casoni test produced a reaction. On July 25 a biopsy specimen was taken from the affected area of the lateral femoral condyle and examined by Dr. H. F. Bettinger, of the Royal Women's Hospital, Melbourne, whose opinion was that the growth was an osteoclastoma, probably malignant. He reported in the following terms on the specimen:

> Macroscopic: Specimen consists of many pieces of friable tissue which have a slight yellowish appearance.
>
> Microscopic: Sections through the material show an abundance of giant cells as one usually sees them in the benign giant cell tumour of bone. However, it is noteworthy that these giant cells are not evenly distributed through the whole of the material, but are seen in clusters and patches especially where necrosis is occurring. If one examines the tissues between the giant cells, one realizes that this is not really mature fibrous tissue, but that it is made up from somewhat immature mesenchymal spindle cells. The tumour must therefore be regarded as a sarcoma.

At that stage the patient would not consider amputation, and a course of irradiation was carried out at the Peter MacCallum Clinic in Melbourne. The response was unsatisfactory, and amputation through the right thigh was performed on March 12, 1953. A further biopsy specimen from the affected area of the right femur was examined by Dr. Bettinger, who reported in the following terms:

> Macroscopic: The lower 12·5 cms. of a femur. When cut lengthwise one sees the lower 6 cms. of its medullary cavity have been replaced by a semi-loculated and well circumscribed elongated, cystic space containing a mucoid mass. The general contours of the bone have not been distorted by this change.
>
> Microscopic: Sections through the tumours show that the pattern has undergone profound alterations. Instead of the highly cellular growth that was observed earlier, one sees now a loose connective tissue in which cells occur far less frequently than before. However, this connective tissue is not mature fibrous tissue, but a very fine fibrillar connective tissue with cells that seem young and active and which produce occasionally a giant cell. While therefore many of the attributes of a malignant tumour have disappeared, the new tissue is not just degenerated or scar tissue, but it reveals a certain amount of activity. The amputation seems, therefore, well justified.

On November 30, 1955, the patient came for examination again, because of a melanoma on the dorsum of the left hand, which was said to be increasing in size. No enlargement of regional lymph glands was clinically evident. On December 6, radical local excision of the affected area with a surrounding portion of normal tissue was performed. Dr. V. Plueckhahn, who examined the specimen, reported that the lesion was a malignant melanoma. Radical excision of the left axillary and left cubital lymph glands with the intervening lymph stream was undertaken. Pathological examination by Dr. Plueckhahn revealed secondary melanoma in the axillary lymph glands.

Dr. Bors said that at the time of the meeting the patient was in a satisfactory clinical condition in regard to both lesions.

Carcinoma of the Rectum and of the Breast.

Dr. Bors's second patient was a married woman, aged 63 years, who had first presented in November, 1948, with a large prolapsing proliferative lesion of the rectal mucosa. Clinical examination revealed no abnormality in the abdomen or the vagina. The lesion was treated by ligature and local excision. Dr. Bettinger, who made a pathological examination of the specimen, reported that the lesion was a carcinoma of the rectum. Combined abdomino-perineal excision of the rectum was thereupon performed. The patient reported again on February 18, 1951, with the clinical features of acute intestinal obstruction caused by the formation of dense adhesions in the region of the permanent residual colostomy. Laparotomy with enteroanastomosis was performed on the same day.

On September 5, 1955, the patient again appeared for examination, because of a mass at the outer aspect of the right breast, present for about six weeks and having the clinical features of a carcinoma. No axillary glands were palpable. The mass was excised, and examination of a frozen section at the time of operation showed the lesion to be a papillary carcinoma. Right radical mastectomy was performed immediately after the pathological findings were known. No secondary deposits were found on microscopic examination of the axillary lymph glands. The patient was given a post-operative course of radiation therapy at the Peter MacCallum Clinic. At the time of the meeting her clinical condition was satisfactory in regard to both lesions.

Carcinoma of the Cervix and of the Pelvic Colon.

Dr. Bors finally showed a married woman, aged 67 years, who in December, 1950, had been treated for carcinoma of the cervix at the Royal Prince Alfred Hospital, Sydney, by irradiation and Wertheim's radical hysterectomy. Pathological examination of the lesion showed it to be a squamous carcinoma; no lymph glands were involved.

On May 16, 1955, the patient presented with the clinical features of acute-on-chronic obstruction of the large bowel. Laparotomy was performed two days later, when the diag-

nosis was confirmed, and the cause of the obstruction was found to be a sclerosing lesion of the lower part of the pelvic colon. A transverse colostomy was established. Resection of the pelvic colon was carried out on June 7, with end-to-end anastomosis, which proved difficult. Dr. Plueckhahn made a pathological examination of the lesion, and reported that it was a carcinoma. There was no evidence of involvement of lymph glands. The colostomy was closed on September 7, and at the time of the meeting, two years later, the patient's clinical condition was satisfactory with regard to both lesions.

Orthopædic Conditions.

DR. E. I. FARGIE first showed X-ray films illustrating the treatment of displaced fractures of the femoral neck by means of the Charnley compression screw and sleeved plate.

Dr. Fargie then discussed a case of fracture-dislocation of the shoulder joint with antero-inferior dislocation of the head of the humerus, and a horizontal fracture of the scapula through the glenoid fossa with wide separation of the fragments. The patient had been treated by open reduction and wiring of the scapula.

Systemic Lupus Erythematosus.

DR. D. N. L. SEWARD showed a male patient, aged 49 years, who had not suffered any serious illnesses since childhood, and did not recall even minor ailments until about March, 1951, when he developed a rash. The rash first appeared on the hands and was attributed to kerosene, and he was accepted as a workers' compensation liability for the subsequent illness over the next six months. During the six weeks after the onset the rash gradually spread up the arms to the elbows, and appeared on the neck, face, nose, cheeks, forehead and ears. He gradually became worse; the hands became swollen and the skin peeled. He developed loss of appetite and fever, had profuse night sweats, and lost three stone nine pounds' weight in six months. In September, 1951, he had been admitted to the Royal Melbourne Hospital. In addition to the rash and fever, he had joint pains, albuminuria and diplopia due to left sixth nerve paresis. The diagnosis of *lupus erythematosus* was made and confirmed by the finding of L.E. cells in the patient's serum. Cortisone therapy produced dramatic relief of all his symptoms and signs, including the sixth nerve palsy. Over a period of two weeks the cortisone dosage was tapered off to 50 milligrammes per day, but at that level all his symptoms reappeared with increased intensity, and he developed a complete third nerve palsy on the right side. With increased dosage of cortisone to 300 milligrammes per day there was again dramatic improvement. The dosage of cortisone was again reduced, but ACTH was given, and finally 50 milligrammes of ACTH were implanted in the subcutaneous fat of the abdominal wall. The improvement was maintained, and he was discharged from hospital on December 4, a few days after a second dose of ACTH had been implanted.

The patient resumed work early in 1952, feeling well except for diplopia, which persisted. In July, 1952, he was given a further course of ACTH followed by "Atebrin" for several months. Early in 1956 he had a recurrence of the rash and sweats and was treated with cortisone; he was off work for several weeks. Except for those short periods and an occasional day off with an aching joint, he had been able to carry on with work as a tool storeman from 1952 till 1957. In April, 1957, he was "feeling flat again", and had pains shifting from joint to joint. In May the rash recurred—small erythematous areas on the fingers and also on the ears—and he had some sweats at night. In June he complained of anorexia, and the rash was more troublesome, particularly on the ears, which were swollen and tender at the free edge of the pinna.

On July 1 he was admitted to the Geelong Hospital for investigation with a view to cortisone therapy. Whilst in hospital he was afebrile and had no sweats. His main complaints were anorexia, headache, weakness and diplopia. Examination showed him to be a tall, thin, pale man with erythematous lesions on the hands, face and ears. The blood pressure was 126/84 millimetres of mercury; the spleen was not palpable, and there was no enlargement of the lymph glands. Examination of the eyes revealed some sclerosis and opacity of the left lens (possibly the cause of the diplopia). In the left optic fundus there was a pallid area the size of the disk about three disk diameters above the disk. Laboratory investigations showed anæmia and neutropenia, albuminuria and evidence of renal involvement, and an abnormal serum protein pattern.

It was thought that the patient's general condition did not warrant the use of cortisone, and treatment with chloroquine was commenced in a dosage of 0·5 gramme per day for two weeks and then 0·25 gramme per day. The intramuscular injection of iron did not relieve the anæmia, and he was given a blood transfusion. On his discharge from hospital on July 25, the skin lesions, particularly those on the ears, had decreased and he felt considerably better. He resumed work during the first week in August, but two days later he had a sudden attack of vertigo, with tinnitus in the left ear and nystagmus on looking to the left, but no other abnormal signs. He improved slowly from this attack and resumed work a few weeks later. Chloroquine therapy was discontinued at the time of this attack of vertigo, and at the time of the meeting the lesions on the hands and face had become slightly more prominent again.

Dr. Seward said that considerable interest had been centred on *lupus erythematosus* since the discovery of the L.E. cell phenomenon by Hargraves in 1948. The exact nature of that phenomenon and its relationship to systemic *lupus erythematosus* remained obscure. In many recorded cases the onset had been related to a hypersensitivity reaction. If kerosene precipitated the illness in the case under discussion, one still had to ask how it acted and what other factors played a part. At the most severe stage of the illness in 1951, paresis of several cranial nerves occurred, recovery taking place along with the general recovery. Dr. Seward wondered whether the recent vertigo was a further effect of the disease, or unrelated, or due to the chloroquine. He also wondered whether cortisone (or related compounds) was indicated at the present stage of the patient's illness. There were skin lesions, anæmia and renal damage, but no severe constitutional upset. The kidney changes were the most serious of the present findings. Haserick maintained that the renal lesions of systemic *lupus erythematosus* were usually unaffected by the cortisone group of drugs.

Pulmonary Tuberculosis and Tuberculous Meningitis.

Dr. Seward's next patient was a man, aged 50 years, who had arrived from Lithuania in 1951 and had not previously been in hospital with any illnesses. Prior to his admission to the Geelong Hospital on February 21, 1956, he had suffered from a chronic cough for at least a year, and had had an hæmoptysis about November, 1954, which had not been investigated. In recent months the cough had been worse and he had lost some weight, but had continued working as a labourer with the railways department till just before his admission to hospital. For about two weeks he had suffered from headaches, and on his admission to hospital seemed mentally confused. On the day of his transfer to the Chalet (August 25, 1957) he had epileptiform convulsions.

Investigations confirmed the presence of tuberculous meningitis in addition to extensive pulmonary tuberculosis. Lumbar puncture produced cloudy cerebro-spinal fluid under a pressure of 180 millimetres; the response to the Pandy test was positive, and to the Nonne-Appelt test negative; the fluid contained 600 lymphocytes, 50 polymorphs and 150 red blood cells per cubic millimetre; the chloride and protein contents were 650 milligrammes and 160 milligrammes per 100 millilitres respectively, and the sugar content was greater than 50 milligrammes per 100 millilitres. Culture of this specimen produced a growth of tubercle bacilli on April 11, 1956. The sputum contained tubercle bacilli, and the Mantoux test produced a positive reaction with 1/1000 old tuberculin. On February 22 a blood count gave the following results: the erythrocytes numbered 4,300,000 per cubic millimetre, the hæmoglobin value was 84%, and the leucocytes numbered 15,000 per cubic millimetre; slight neutrophilia and a "shift to the left" were present. On February 28 the leucocytes numbered 41,000 per cubic millimetre, 87% being neutrophils. An X-ray examination of the chest revealed extensive fibrosis and collapse of the upper two-thirds of the left lung, with deviation of the trachea to the left, a large cavity in the left mid-zone, and scattered infiltration and fibrosis over the right mid-zone. Microscopic and cultural examination of the urine revealed no abnormality. Three days after the commencement of chemotherapy the patient's temperature rose to a peak of 102·6° F.; he had been afebrile ever since.

Dr. Seward said that the patient was given the following courses of chemotherapy: (*a*) streptomycin for nine months; (*b*) INH, 500 milligrammes per day throughout; (*c*) PAS (*plus* INH) from December, 1956, to April, 1957; (*d*) viomycin (*plus* INH) from April to August, 1957; (*e*) PAS (*plus* INH) from August, 1957, onwards. In addition, he had initially had 50 milligrammes of pyridoxine bi-weekly, and also symptomatic therapy such as sedatives. After the first week, when he was very ill, irritable, restless and confused, he began to show improvement, and had made steady progress ever since. His weight increased from seven stone

seven pounds to ten stone seven pounds. Except for scanty sputum, he had been symptom-free for at least six months. He felt and looked well. Sputum tests gave positive results till January, 1957, but the results of direct smear and cultural examinations had been negative since then. X-ray films showed clearing of the right lung, but gross changes persisted on the left side. In January, 1957, he was transferred to the Austin Hospital for investigation with a view to left pneumonectomy. Lung function studies revealed practically no function in the left lung. Bronchoscopy showed considerable distortion of the left main bronchus and reddening around the orifices of the upper lobe and the apex of the lower lobe. Pneumonectomy was recommended, but the patient refused to accept that advice because he felt quite well and could "see no reason for it". He was continuing with long-term chemotherapy, and so far was doing well, as judged by his general condition and the results of recent bacteriological tests.

Dr. Seward said that the patient was presented, not to illustrate anything new or dramatic, but to bring to light a few well-known points. (i) Despite the easy availability of methods of detecting early tuberculosis, it was still not uncommon to find a patient first presenting for treatment with the disease already in an advanced state. (ii) Although the patient under discussion had done well, judged by standards of ten years earlier, his future was by no means secure. Treatment several years earlier would almost certainly have seen a very different final result. (iii) Routine examination of his family showed that his wife, daughter and two sons all reacted to the Mantoux test. One son had a small pleural effusion when radiologically examined in March, 1956. It was probable that the father was the source of infection, and that the damage had been done in the two-year period before his admission to hospital and could have been avoided by earlier recognition and treatment of the condition.

Brucellosis.

Dr. Seward finally showed a man, aged 56 years, who had been in good health until the onset of his present illness three months before his admission to hospital. He had no history of any serious previous illness. He had been admitted to the Geelong Hospital on December 12, 1956, with the diagnosis of pyrexia of unknown origin. About three months earlier he had a pain in the left side (possibly pleurisy), and he was given a few injections of penicillin. After one week he returned to work at Swan Island Mine Depot, but he did not feel well. He usually had a good appetite, but now he could not eat. He would come home from work each day feeling tired and weak, go to bed early, and then wake up in the middle of the night feverish and sweating. He gradually grew worse and was sometimes delirious at night. Prior to his admission to hospital he had been investigated by barium meal X-ray examination, but no abnormality was found; a blood count one week before his admission gave normal results. Three days before his admission his dentist had reported: "Dental infection and should have prompt treatment; one tooth extracted and one million units penicillin given."

Examination of the patient failed to reveal any significant abnormality except a coated tongue, carious teeth, offensive breath and the obvious fever. The temperature varied from 98° to 103° F., and was usually raised at night, but had no particular pattern. A blood count gave the following information: the hæmoglobin value was 82% (11 grammes *per centum*); the erythrocytes numbered 4,200,000 per cubic millimetre, and the leucocytes numbered 8500 per cubic millimetre, 69% being neutrophils, 24% lymphocytes, 6% monocytes and 1% eosinophils. Of the erythrocytes, the reticulocytes were less than 1%; platelets were plentiful. The erythrocyte sedimentation rate was 47 millimetres in one hour, 82 millimetres in two hours. Serum agglutination tests gave negative results to *Salmonella typhi* H and O, *S. paratyphi* AH and BH, and *S. typhi-murium*. Tests for *Brucella abortus* showed a titre of 1/1000. On December 12 and 17, *Br. abortus* was grown on culture from the blood. A throat swab and specimen of sputum produced a profuse growth of *Staphylococcus aureus* (coagulase-positive) and *Streptococcus viridans*. Microscopic examination of the urine showed an occasional pus cell, one or two red blood cells and an occasional granular cast per high-power field. A Mantoux test produced a negative result. An X-ray examination of the chest showed the heart and lungs to be within normal limits.

Dr. Seward said the treatment had commenced on December 17, and consisted in the administration of chloramphenicol, 500 milligrammes every six hours for seven days, followed by streptomycin, one gramme per day, and "Terramycin", 500 milligrammes every six hours for seven days. At that stage the patient was feeling well, his temperature had been normal for more than one week, and he was discharged home, to continue taking "Terramycin", 250 milligrammes every six hours for a further seven days. He had resumed work six weeks later and had remained well. A further serum agglutination test for *Br. abortus* on September 30, 1957, had showed a titre of 1/50.

Dr. Seward commented that the source of infection was probably the milk supply. The patient usually drank two pints of unpasteurized milk daily. If that was so, one would have expected other cases from the same area. However, brucellosis did not always produce an acute illness, so that such cases might be more easily missed; secondly, some patients might be treated "blindly" with antibiotics such as "Chloromycetin" without diagnosis of the condition. Moreover, positive findings on a blood culture were not common, and success in the present case was attributed to the opportunity to obtain samples of blood at an acute stage of the illness and before antibiotics (except penicillin) had been given. Earlier "blind" use of antibiotics would doubtless have cured the patient, but such treatment was to be condemned; for example, in the differential diagnosis of an illness such as that under consideration, subacute bacterial endocarditis had to be considered, and in the latter disease "blind", inadequate chemotherapy could be disastrous.

Recurrent Acute Pancreatitis Treated by Surgery.

DR. K. COLEMAN showed a male patient, aged 36 years, who had been admitted to the Geelong Hospital on July 11, 1957, with acute abdominal pain, diagnosed as a perforated peptic ulcer. Laparotomy revealed acute pancreatitis. He was readmitted to hospital on March 5, 1957, with recurrent acute pancreatitis, which responded slowly to conservative treatment, but over the next six weeks relapses were severe and frequent. Over the previous three months his general condition had deteriorated greatly, and he had lost about three stone in weight. He was unable to work and could be said to be totally incapacitated.

On April 23 it was decided to explore his biliary and pancreatic ducts. At operation, the gall-bladder and common duct were normal. Hypertrophy and moderate stenosis of the sphincter of Oddi were present. The duodenum was opened, and the sphincter divided from the duodenal aspect, a small portion of the muscle being removed. The opening of the pancreatic duct was not found. A cholecystectomy was performed and the common bile duct was closed without drainage. The post-operative course was uneventful, and his general condition slowly improved.

Anastomotic Ulcer Treated by Vagotomy.

Dr. Coleman's second patient was a woman, aged 43 years, who in 1953 had undergone a Pólya type partial gastrectomy for chronic duodenal ulcer. She had been almost free of symptoms until nine months prior to her admission to hospital on July 3, 1957. At that time she was found to have an acute exacerbation of an anastomotic ulcer with temporary intraperitoneal leaking (not a frank perforation). Medical treatment in hospital was carried out for a period of three weeks. A gastroscopic examination was carried out on July 23; a fairly deep ulcer was seen on the left side of the gastro-jejunal junction. The ulcer had sharp edges with no very definite signs of healing. The stomach mucosa was red and unhealthy looking (the patient had had no food for the previous 18 hours). Despite continuance of medical treatment, she continued to have severe epigastric pain with tenderness up till the time of her operation. Vagotomy was carried out on August 21 through the left side of the chest, and the epigastric pain stopped immediately. A further gastroscopic examination on October 2 showed that the ulcer site had healed, and only a small mucosal scar was seen; the stomach mucosa appeared to be healthy.

Dr. Coleman also showed a male patient, aged 58 years, who in 1955 had undergone a Pólya type partial gastrectomy for chronic duodenal ulcer. He had had hypertension with a blood pressure in the region of 190/120 millimetres of mercury for many years. He had been free of ulcer symptoms up till the time of his admission to hospital on December 31, 1956. At that time he was having a hæmorrhage from a small gastro-jejunal ulcer. He had had a small hæmatemesis with persistent melæna for one week. He was given a transfusion of four pints of blood. A gastroscopic examination on January 4, 1957, revealed a small anterior gastro-jejunal ulcer, not bleeding at the time; however, the edges were sharp and there were no signs of healing. Vagotomy was carried out on January 9. The post-operative

course was uneventful. No further bleeding occurred, and the patient could eat a normal diet without symptoms.

Perforated Recurrent Gastric Ulcer Treated by Vagotomy.

Dr. Coleman finally showed a male patient, aged 56 years, who in 1951 had undergone a Pólya type partial gastrectomy for chronic duodenal ulcer. He had been free of symptoms since operation, except for indigestion present for one month prior to his admission to hospital on May 28, 1957. At that time he was found to have a perforation of a large anterior gastric ulcer. The ulcer was 3·5 centimetres in diameter and appeared to be fairly chronic, as there was a firm fibrous tissue base. The ulcer was oversewn in the usual manner, an attempt being made to bring mucosa to mucosa. A gastroscopic examination on September 3 showed a large gastric ulcer immediately above the gastro-jejunal junction. There was very little sign of healing. Vagotomy was carried out on September 8 through the left side of the chest. A gastroscopic examination on October 9 showed that an anterior gastric ulcer was still present, but now was small, very shallow and healing well.

The Management of Cardio-Respiratory Arrest.

DR. A. R. WATERHOUSE and DR. G. C. DARBY gave a demonstration of the management of cardio-respiratory arrest. The object of the demonstration was to emphasize the drill of instant recognition, thoracotomy with cardiac massage and effective oxygen inflation as the essential immediate steps in the treatment of clinical cardiac arrest. An attempt was made to show that the restoration of a heart beat, though important, was not sufficient unless it was done sufficiently rapidly so that cerebral deterioration did not occur. A dog was anæsthetized with pentobarbitone given by the intraperitoneal route, and then anæsthesia was maintained with nitrous oxide and oxygen given endotracheally, with soda-lime absorption for controlled respiration. An intravenous infusion was commenced in the right femoral vein, the animal was heparinized, and the right femoral artery was cannulated for a blood-pressure record. Bilateral anterior thoracotomy exposed the heart clearly. With the pericardium open, cardiac arrest was allowed to result from anoxia. Ventilation with oxygen and cardiac massage resulted in the restoration of blood pressure, and then normal cardiac contraction and a normal circulation followed. The heart was then allowed to become anoxic again, and an intraaortic injection of adrenaline three cubic centimetres of a 1/10,000 solution precipitated ventricular fibrillation. The use of the electric defibrillator in conjunction with massage and oxygen inflation was demonstrated. The demonstration showed that the illogical use of "stimulant" injections was of no value, and wasted time while the main measures of ventilation and cardiac massage were carried out.

Some Dangers of Hypotensive Therapy.

DR. J. AGAR read a paper entitled "Some Dangers of Hypotensive Therapy", based on observations upon several patients seen in the Geelong and District Hospital in the past year. He said that modern hypotensive drugs could be divided into two main groups, those acting centrally and the ganglion-blocking agents. A combination of the two groups was often used, smaller doses of each being required, but risks were attendant on each group. The rauwolfia preparations were slow to act, and their maximum effect was not evident until 10 to 14 days had elapsed. The ganglion-blocking agents, on the other hand, especially if administered parenterally, were apt to induce rapid and severe hypotension. Dr. Agar said that his first series of patients were hypertensive subjects submitted to operation while receiving hypotensive therapy. It had been his experience that hypertensive patients would not tolerate hypotension, particularly renal hypotension. The nephrosclerosis of hypertension resulted in an impaired renal blood flow, and lowering of the blood pressure below the optimum level aggravated the renal anoxia. If that was continued, renal failure analogous to that of the crush syndrome might ensue. Three of the patients had died in renal failure, and Dr. Agar briefly reviewed their histories. In the second case, intestinal atony had resulted from the use of ganglion-blocking agents. He said that the danger lay in continuing hypotensive treatment up to and even after operation, particularly if the operative procedure involved was associated with much tissue damage and shock. In elective surgery, it was recommended that hypotensive drugs should be withheld 10 to 14 days before operation. Rest in bed with sedation should keep the blood pressure at a safe level until operation. The danger period was not during the operation, when the anæsthetist could control the blood pressure, but the early post-operative period, when hypotension was always likely to develop. Pressor drugs should be given early, and of those, "Neo-Synephrine" was effective and safe. Nor-adrenaline would increase the renal blood flow, but also had a ganglion-blocking effect, and tended to produce hypotension when withdrawn. Hydrocortisone given intravenously might also relieve renal insufficiency.

Dr. Agar went on to say that the second problem for consideration was bound up with the rather loose diagnosis of hypertensive encephalopathy applied to patients suffering from hypertension with cerebral symptoms. The sense of urgency induced by the diagnosis of encephalopathy could lead to mistaken treatment. Two patients were admitted to hospital suffering from cerebral thrombosis after receiving "Ansolysen" intramuscularly for supposed hypertensive encephalopathy. One died, and at autopsy, cerebral thrombosis in the left parietal lobe was found, with more recent hæmorrhage; she also had an unsuspected carcinoma of the caecum with peritoneal metastases. The other patient recovered to some extent on treatment with "Methedrine", and at the time of the meeting was considered to have good prospects of a full recovery. Dr. Agar said that the sequence of events appeared to be the occurrence of a sudden hypotension, resulting in a drop of intracranial blood pressure below its critical level. That led to vascular stasis and ultimately to thrombosis.

Dr. Agar then said that, in view of the recent addition of mecamylamine ("Mevasine") to the list of pharmaceutical benefits, it was of interest to describe a different kind of occurrence. This was exemplified by the history of a patient who was treated for an increase of her hypertensive symptome with mecamylamine. She developed signs of paralytic ileus, mecamylamine therapy was stopped, and the ileus was treated successfully with "Carbachol". Within 10 days her blood pressure rose to 250/140 millimetres of mercury and she suffered a cerebral hæmorrhage, which led to her admission to hospital. She died four days later. Dr. Agar said that that case illustrated two aspects of treatment with ganglion-blocking agents. The first was the tendency to intestinal atony which he had already mentioned. That was inevitable because of the mode of action of the drugs, and must be anticipated when they were used. The second aspect was the hypertensive rebound which followed the sudden withdrawal of the ganglion-blocking agent; that possibility indicated the need for gradual reduction in dosage.

Dr. Agar said, in conclusion, that in spite of the problems he had described, the combination of a rauwolfia preparation and a ganglion-blocking agent seemed to be the best method in the majority of cases of controlling essential hypertension severe enough to require more than a modification of the patient's mode of life.

PROFESSOR J. G. HAYDEN said that the problems mentioned by Dr. Agar were commoner than was generally believed, and hypotensive drugs should not be given to patients unless there were proper indications for their use. It was questionable whether long-term use of the drugs would avert cerebral catastrophes. If surgical operations were to be performed, hypotensive drugs should be withdrawn beforehand, and if an oral preparation of "Ansolysen" had been administered and it was essential to continue its use, a switch should be made to an injectable "Ansolysen", as control was easier with smaller doses. If, while a patient was receiving hypotensive drugs, urgent operation became necessary and the drug could not be withdrawn, it was important to watch closely the post-operative state of the patient, and untoward symptoms could be controlled by the use of "Neo-Synephrine" or nor-adrenaline. Ileus could occur in patients taking hypotensive drugs, and the associated cramping pain could be mistaken for intestinal obstruction and, with mecamylamine ileus, could occur suddenly. Professor Hayden said that if that happened, he himself would not resume the use of that drug. It was also necessary that sedation be carefully watched while hypotensive drugs were being used. It was of major importance to realize that those drugs were powerful, and he doubted whether they should be used for the elderly unless left ventricular failure was present. Elderly persons with high blood pressure and some cerebral disturbance should not be regarded as encephalopathic, and it was bad to reduce their blood pressure suddenly.

DR. J. ROBINSON said that one of the side effects of hypotensive drugs was ocular change. Accommodation was disturbed, with difficulty in reading, and in some cases the disturbance would right itself.

Dr. Agar, in reply, said that he agreed with Professor Hayden concerning the use of hypotensives for the aged, and considered that milder therapy and general management were more important.

The Ubiquitous Staphylococcus.

DR. V. D. PLUECKHAN, on behalf of himself and MISS JOAN BANKS, bacteriologist to the hospital, read a paper entitled "The Ubiquitous Staphylococcus". This paper will be published in full in a later issue of the Journal.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

ADMISSION OF MEDICAL MEN TO HOSPITAL ROUNDS.[1]

[From the *Australasian Medical Gazette*, July, 1890.]

AT a recent meeting of the Committee of the Women's Hospital, Melbourne, a letter was received from Dr. Felix Meyer, the chairman of the Honorary Medical Staff, on the question of opening the midwifery department to outside members of the profession. He stated that the feeling of the staff was that great care would have to be taken in the granting of the privilege. Each honorary member of the staff was willing that any medical man desiring to accompany him on his rounds could do so providing he was prepared to give a guarantee that he was free from every risk of conveying infection or contagion. The same condition would apply to the granting of permission to medical men desirous of witnessing operations. While perfectly willing to extend the ordinary courtesies of hospitals to members of the medical profession, the honorary staff were fully alive to the risks or such extension which applied with especial force to the lying-in department. The letter was received and its recommendations approved of.

Correspondence.

PSYCHIATRIC CONSEQUENCES OF RAUWOLFIA THERAPY.

SIR: Dr. Heilig and Dr. Vakil,[2] of India, as well as others, have reluctance to accept the serious psychiatric effects that result from the use of rauwolfia compounds such as I described in 32 patients.

At the Mayo Clinic, R. L. Faucet *et alii*[3] report a series of 42 patients who developed similar psychiatric disturbances whilst being treated with rauwolfia preparations. These 42 patients included only those who did not have clinical depression prior to medication and in whom careful psychiatric examination could elicit no facts that would lead to psychiatric disturbances.

The inescapable basic fact is the challenging one that these psychiatric consequences are due to rauwolfia derivatives *per se*.

Yours, etc.,

F. J. KYNEUR.

195 Macquarie Street,
Sydney,
February 26, 1958.

MEDICAL SERVICES FOR THE UNEMPLOYED.

SIR: Unemployment has already reached mass levels in some parts of Australia, and the trend is towards greater unemployment here as in the United States.

This has already raised the problem of providing medical and hospital services for unemployed workers and their families. The problem will grow as more workers remain unemployed for longer periods—and already quite a number have been without work for three months and more.

We are obviously concerned with this matter, both from humane and financial angles. Some method will have to be devised whereby these people can get attention, and not as a charity service.

It may be that something like the Pensioner Medical Service can be devised to cover all registered unemployed beyond a stipulated period. It may be that the Government could keep financial in their benefit societies, those already insured, and automatically insure those not now members of benefit organizations. In this case the "rebates" could be the only amount chargeable for services rendered.

I put these suggestions forward, not as ready made solutions, but in order to stimulate attention to this problem which, I fear, will become a larger and pressing one in coming months and years.

Yours, etc.,

ALAN FINGER.

668 Torrens Road,
Pennington,
South Australia.
February 24, 1958.

HIATUS HERNIA.

SIR: In his bold assault on the surgical position in hiatus hernia, Dr. Luke Murphy (M. J. AUSTRALIA, January 4, 1958) plants a little flag in the territory of the psychiatrist. He says: "The study of emotional stress could be satisfactorily carried out only in those patients who were observed over a long period of time. The effects of anxiety, resentment and similar stress could in this way be discussed and noted as they arose. Of 31 patients studied to my satisfaction, there were 10 cases in which there was a definite and repeated relationship between exacerbations of symptoms and emotional distress. In seven others there was no such relationship, although considerable stress was experienced at times. In the remaining 14 cases no definite conclusion was reached. In no instance did this factor appear to be associated with the initial onset of symptoms."

Surely all onsets are initial. However, the most initial part of the onset must be the actual physical process of herniation, which could not be viewed unless one had the attributes which the radiologist usually attributes to his apparatus.

The percentage of cases in which Dr. Murphy got satisfaction from the presence, of what he believed to be a relevant and adequate psychogenesis, is one-third. This happens to be a common overall figure for the incidence of psychological factors in general practice.

At the beginning of this century, psychiatry was endeavouring to assemble and arrange its facts. Three waves from the psychopathologies of everyday life swamped this endeavour. The password into this section of the occupation forces is "psychodynamic". The *coup de grâce* was administered by a fourth wave, that of the academic physicians. Their password is "psychosomatic".

Any scheme of psychological causation must not only be adequate, but it must be relevant. The proving of these two aspects is no easy matter.

Yours, etc.,

BARRY MULVANY.

London,
February 25, 1958.

EPISIOTOMY.

SIR: In support of Dr. L. J. Shortland's letter regarding episiotomy in the Journal of February 22, my humble opinion is that episiotomy is a relic of the barbaric age and should never be done. When the perineum fails to heal, episiotomy causes gross prolapse, with frequent subsequent hysterectomy.

Means of Avoiding Episiotomy.

1. The perineum must not be swollen and œdematous; treatment to prevent this swelling makes the perineum retain its elasticity.

[1] From the original in the Mitchell Library, Sydney.
[2] M. J. AUSTRALIA, 1958, 1: 198.
[3] *Arch. Neurol. & Psychiat.*, 1957, 77: 513.

2. The position of the patient should be on the left side or on the back, with the legs fully extended. The lithotomy position ranks in evil with episiotomy.

3. The bladder should be completely emptied with a catheter, early in the third stage.

4. When the fœtal head presents on a tight perineum, the midwifery forceps should be used on the oncoming head very gently and carefully, and removed before the head is finally delivered. If the bladder is pushed off the occiput the perineum looks after itself. The forceps can be used as dilators, if they are carefully moved backwards and forwards. The degree of vaginal orifice dilation thus secured is surprising.

5. The use of chloroform, now regarded as criminal, is, in my opinion, excellent.

Professor Mayes may care to guide this country practitioner.

Yours, etc.,

44 Anson Street,
Orange,
New South Wales.
February 28, 1958.

H. R. HODGKINSON, SNR.

SIR: I wish to refer to Dr. Shortland's letter (M. J. AUSTRALIA, February 22, 1958) on this subject and to join the spate of hostile colleagues which he anticipates.

However, the ground on which I offer battle is different from that on which he throws down his challenge.

I disagree with Dr. Shortland's statement that an intact perineum is the desire of every obstetrician and that it is also the primal right of every woman who lends herself to motherhood.

The reasons for my disagreement are twofold, to wit:

(*a*) An intact perineum is often an overstretched perineum and leads to prolapse later.

(*b*) An overstretched perineum can be related unfavourably to marriage relationships, particularly in young couples.

These undesirable effects can be obviated by episiotomy, properly performed, sutured and covered by antibiotics when necessary.

The female perineum evolved in pronograde animals and is not yet efficient, once stretched by childbirth, in the orthograde position.

Judicious episiotomy is, in my submission, the answer to this.

This is a most important issue, and if I am putting up an Aunt Sally I hope that obstetricians, psychologists and marriage guidance experts will have a shot at knocking it down.

Yours, etc.,

Highett Street,
Mansfield,
Victoria.
March 1, 1958.

L. EDWIN VINE.

Post-Graduate Work.

F.O.C.L.A. POST-GRADUATE WEEK.

Final Programme.

THE seventh annual post-graduate week of the Federation of Country Local Associations of New South Wales will be held at Canberra from April 14 to 18, 1958. The final programme is as follows:

Monday, April 14: 9 a.m., inauguration; 9.30 a.m., opening address by Professor John L. Lowenthal, Professor of Surgery, University of Sydney, "Sic Transit Chirurgica". 11 a.m., "Modern Trends in Chemotherapeutics", Dr. A. W. Morrow. 2 p.m., visit to Parliament House. 4 p.m., "Shoulder and Arm Pains", Mr. W. S. L. Stening. 5.30 p.m., cocktail party at Hotel Canberra.

Tuesday, April 15: 9.30 a.m., (i) "Depressive State", (ii) "Asthma", Dr. David Ross. 11 a.m., "The Kuru Disease", Professor J. C. Eccles (Australian National University). 2 p.m., "Medical Politics", F.O.C.L.A. Oration by Dr. B. W. Monahan. 3.30 p.m., visit to the Australian War Memorial. 5.30 p.m., reception at Government House.

Wednesday, April 16 (at the John Curtin School of Medical Research, Australian National University): 10 a.m., "Salt Metabolism in Hypertension", Dr. G. B. Mackaness. 11.30 a.m., "Recent Advances in Understanding of Viral Infections in Childhood", Professor F. J. Fenner. 7.45 p.m., visit to the John Curtin School of Medical Research, Australian National University.

Thursday, April 17: 9.30 a.m., "Pitfalls of Allergy", Dr. Clive Sands. 11 a.m., "Bad Legs and Vascular Diseases", Mr. C. W. H. Lawes. 2 p.m., visit to Research School of Physical Sciences, Australian National University. 4 p.m., "Pædiatrics with and without Hormones", Professor L. F. Dods. 7 p.m., official dinner at Hotel Canberra.

Friday, April 18: 9.30 a.m., visit to Mount Stromlo (commencing 9.30 a.m. sharp at Mount Stromlo). 2 p.m., "Pulmonary Embolism and Pulmonary Infarction", Dr. G. E. Bauer. 4 p.m., "The Prevention of Severe Pre-Eclampsia and Eclampsia", Dr. R. B. C. Stevenson.

Preliminary hotel bookings have been made, but these can only be held until the end of March, so intending members of the course must notify Dr. A. G. Cumpston, P.O. Box 365, Canberra City, A.C.T., before the end of March. Full fee for the course, including annual dinner and all social functions, is £8 8s. An additional fee of £2 should be included for hotel booking. Please make cheques payable to "Medical Officers' Clinic Account".

The College of General Practitioners.

SOUTH AUSTRALIA FACULTY.

A VERY WELL ATTENDED MEETING was held at 80 Brougham Place, North Adelaide, on February 8, 1958. The chair was taken by Dr. Peter Verco, President of the South Australian Branch of the British Medical Association.

A motion "that the South Australia Faculty of the College of General Practitioners be established" having been carried unanimously, Dr. L. R. Mallen was elected the first Provost of the new Faculty, and took the chair. An interim Faculty Board, to hold office until the first annual meeting of the Faculty, was then elected.

At a subsequent meeting of the Board, office-bearers were elected as follows: Chairman, Dr. L. R. Mallen; Vice-Chairman, Dr. Richard Oaten; Honorary Treasurer, Dr. D. W. Shepherd; Honorary Secretary, Dr. R. Greenlees.

Subcommittees were appointed as follows: Undergraduate Education Committee, Dr. C. C. Jungfer, Dr. J. M. Last (convener), Dr. John Yeatman; Post-Graduate Education Committee, Dr. J. L. H. Lindon (convener), Dr. R. E. Russell, Dr. W. J. Sleeman; Research Committee, Dr. K. C. Crafter (convener), Dr. D. F. Hannon, Dr. M. G. Jansen; Faculty Censors, Dr. L. R. Mallen, Dr. C. C. Jungfer, Dr. John Yeatman.

Dr. C. C. Jungfer was nominated as the representative of the Faculty on the College Council, and Dr. D. K. Kumnick and Dr. L. R. Mallen as representatives on the Australian Council of the College.

Representatives on the subcommittees of the Australian Council were nominated as follows: Undergraduate Education Committee, Dr. J. M. Last and Dr. John Yeatman; Post-Graduate Education Committee, Dr. J. L. H. Lindon and Dr. R. E. Russell; Research Committee, Dr. K. C. Crafter and Dr. C. C. Jungfer; Editorial Committee, Dr. D. B. Allsop and Dr. D. F. Finnegan; Committee in Preventive Medicine, Dr. E. P. Cherry.

VICTORIA FACULTY.

THE Victoria Faculty will hold an open general meeting at the Medical Society Hall, 426 Albert Street, East Melbourne, on Thursday, April 10, 1958, at 8.15 p.m.

Professor M. R. Ewing, Professor of Surgery, University of Melbourne, will give an address.

Prizes will be presented to the authors of the prize-winning Aaron Cohen essays on "How to Keep Healthy".

All members of the British Medical Association are invited to be present.

Congresses.

NINTH INTERNATIONAL CONGRESS OF PÆDIATRICS.

THE ninth International Congress of Pædiatrics will be held in Montreal, Canada, from July 19 to 25, 1959, under the auspices of the International Pædiatric Association at the invitation of the Government of Canada and the Canadian Pædiatric Society.

The scientific programme has been planned to embrace the problems of child care in their broadest sense, and will include plenary sessions, panel discussions, original communications and scientific exhibits. Simultaneous interpretation will be employed for all plenary sessions. Official languages will be English, French and Spanish.

Further information may be obtained from the Secretary-General, IX International Congress of Pædiatrics, P.O. Box 215, Westmount, Montreal, Canada.

SECOND WORLD CONGRESS: INTERNATIONAL FEDERATION OF GYNÆCOLOGY AND OBSTETRICS.

THE second World Congress of the International Federation of Gynæcology and Obstetrics, which will be held in Montreal, Canada, from June 22 to 28, 1958, will include on its programme lectures by the following guest speakers: Professor Murray L. Barr (Canada), "Tests of Chromosomal Sex and Their Application to Clinical Problems". Professor Hermann Bautzmann (Germany), "Comparative Studies on the Histology and Function of Animal and Human Amnion". Professor Roberto Caldeyro-Barcia (Uruguay), "Contractility of the Human Gravid Uterus and its Application to the Obstetrical Clinic". Professor G. W. Harris (England), "Relationship of the Central Nervous System to Pituitary and Reproductive Activity". Professor Charles Oberling (France), "The Cytology of the Cancerous Cell". Professor Bradley M. Patten (U.S.A.), "The Establishing of Fœtal-Maternal Vascular Relations". Professor Hans Selye (Canada), "Stress in Gynæcology". A representative of the U.S.S.R. (on a subject of his choice).

All correspondence should be directed to the Montreal Committee, Second World Congress, International Federation of Gynæcology and Obstetrics, 1414 Drummond Street, Suite 220, Montreal 25, Canada.

Australian Medical Board Proceedings.

QUEENSLAND.

THE following have been registered, pursuant to the provisions of Section 19 (1) (*a*) and (*c*) of *The Medical Acts*, 1939 to 1955, of Queensland: Moo, Edgar, M.B., B.S., 1956 (Univ. Queensland); Herron, John Joseph, M.B., B.S., 1956 (Univ. Queensland); Fielding, Avis Marie, M.B., B.S., 1956 (Univ. Queensland); Hodges, Roy John, M.B., B.S., 1956 (Univ. Queensland); Holmes, Noel Clarkson, M.B., B.S., 1956 (Univ. Queensland); McIntyre, Kenneth John, M.B., B.S., 1956 (Univ. Queensland); Packer, Ronald Andrew, M.B., B.S., 1956 (Univ. Queensland); Thomas, Thomas Powell, M.B., B.S., 1956 (Univ. Queensland); Withers, Hubert Rodney, M.B., B.S., 1956 (Univ. Queensland); Ramm, Ronald Arthur, M.B., B.S., 1956 (Univ. Queensland); Graff, Robin Roy Roger, M.B., B.S., 1956 (Univ. Queensland); Johnston, Stuart Ruddell, M.B., B.S., 1956 (Univ. Queensland); Farmer, Barry Edgar, M.B., B.S., 1956 (Univ. Queensland); Adcock, Alwyn Joseph, M.B., B.S., 1956 (Univ. Melbourne); Hill, John Brian, M.B., B.S., 1956 (Univ. Queensland); Nicoll, David Alexander, M.B., B.S., 1956 (Univ. Queensland); Hartmann-Johnsen, Olaf Johan, M.B., B.S., 1956 (Univ. Queensland); Broadbent, Geoffrey Donald, M.B., B.S., 1956 (Univ. Queensland); Wall, Arnold William, M.B., B.S., 1957

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED FEBRUARY 22, 1958.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	1	1	7	..	..	..	..	..	9
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	2(1)	..	1(1)	..	..	..	3
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	1(1)	1	..	..	..	..	..	2
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	4(3)	8(6)	1(1)	..	2(2)	..	1	..	16
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	1(1)	1(1)	..	..	..	3	..	5
Encephalitis	..	..	1(1)	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	50(31)	16(7	11	8(6)	14(1)	..	..	..	99
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	1	..	1
Leptospirosis	1	..	5	..	..	..	..	..	6
Malaria	..	1(1)	..	..	..	..	..	..	1
Meningococcal Infection	2	..	..	..	..	..	..	..	2
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	1	..	..	..	..	..	..	..	1
Puerperal Fever	..	..	2	..	..	..	..	..	2
Rubella	..	21(18)	2(2)	3(1)	15(15)	..	..	..	41
Salmonella Infection	..	..	..	1(1)	1(1)	..	..	..	2
Scarlet Fever	9(5)	14(10)	4(2)	1(1)	5(3)	..	..	..	33
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	1	..	..	..	1
Trachoma	..	..	..	..	1(1)	..	2	..	3
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	49(24)	13(9)	15(3)	18(13)	13(9)	2(2)	1	..	111
Typhoid Fever	..	..	1(1)	..	1(1)	..	..	..	2
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

(Univ. Sydney); Gale, William Colin, M.B., B.S., 1956 (Univ. Sydney).

The following have been registered, pursuant to the provisions of Section 19 (1) (*a*) and (*d*) of *The Medical Acts*, 1939 to 1955, of Queensland: Chiswell, Douglas Albert, M.B., B.S., 1952 (Univ. London), M.R.C.S. (England), 1952, L.R.C.P. (London), 1952, D.T.M. and H. (Liverpool), 1957; Pratt, Ronald Victor, M.B., B.S., 1941 (Univ. Melbourne), M.F.A., R.A.C.S., 1952; Gill, Raymond Blackstone, M.B., B.S., 1951 (Univ. London); Carmichael, Graeme Galloway, M.B., B.Chir., 1954 (Univ. Cambridge), M.R.C.S. (England), L.R.C.P. (London), 1954.

The following additional qualifications have been registered: Lukin, Francis William Rennick, F.R.A.C.S., 1957; Yelland, John Douglas Newman, F.R.C.S. (England), 1955.

The Royal Australasian College of Physicians.

THE Victorian State Committee of The Royal Australasian College of Physicians have arranged for Dr. Pehr Edman, Director of Biochemical Research, St. Vincent's Hospital, Melbourne, to deliver a lecture entitled "Structure and Biological Activity of Proteins" in the lecture theatre of the Royal Australasian College of Surgeons, Spring Street, Melbourne, at 5.15 p.m. on Tuesday, April 22, 1958.

All members of the British Medical Association are invited to the lecture.

The College of Radiologists of Australasia.

THE names of the successful candidates in the February, 1958, examinations of the College of Radiologists of Australasia, Part II, for membership of the College are as follows:

Radiodiagnosis: Dr. J. Saxton (New South Wales), Dr. R. J. Hoy (New South Wales), Dr. Barbara Read (New South Wales), Dr. B. V. Mutton (New South Wales), Dr. J. J. Martin (Victoria).

Radiotherapy: Dr. D. L. Green (New South Wales).

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Parnell, Peter Montague, M.B., B.S., 1956 (Univ. Sydney), 4 Rose Street, Cronulla, New South Wales.

The undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

McLatchy, Reginald Shaw, B.Sc., M.R.C.S. (England), L.R.C.P. (London), 1924, D.O., D.O.M.S., 242 Latrobe Terrace, Geelong, Victoria.

Medical Appointments.

Dr. D. P. Finnegan has been appointed honorary clinical assistant to the medical section, Royal Adelaide Hospital, South Australia.

Dr. P. R. Patrick has been appointed a member of the Board of Optical Registration in the Department of Health and Home Affairs, Queensland.

Dr. A. Harrison has been appointed a member of the Board of Optical Registration in the Department of Health and Home Affairs, Queensland.

Dr. J. H. T. Ellard has been appointed clinical psychiatrist in the Division of Mental Hygiene, Department of Public Health, New South Wales.

Dr. B. V. Burke has been appointed medical officer at the Brisbane Mental Hospital, Goodna, Queensland.

Dr. D. W. Johnson has been appointed chairman of the Nurses and Masseurs Registration Board of Queensland.

Dr. B. K. Rank has been appointed a member of the Dental Board of Victoria.

Dr. S. P. Pegg has been appointed Government Medical Officer at Julia Creek, Queensland.

Diary for the Month.

MARCH 15.—Western Australian Branch, B.M.A.: Annual Meeting.
MARCH 18.—New South Wales Branch, B.M.A.: Hospitals Committee.
MARCH 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
MARCH 20.—Victorian Branch, B.M.A.: Executive Meeting.
MARCH 25.—New South Wales Branch, B.M.A.: Council Quarterly.
MARCH 26.—Victorian Branch, B.M.A.: Council Meeting.
MARCH 27.—South Australian Branch, B.M.A.: Clinical Meeting.
MARCH 27.—New South Wales Branch, B.M.A.: Annual Meeting.
MARCH 28.—Queensland Branch, B.M.A.: Council Meeting.
MARCH 29.—Tasmanian Branch, B.M.A.: Annual Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in Australia can become subscribers to the Journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 *per annum* within Australia and the British Commonwealth of Nations, and £6 *per annum* within America and foreign countries, payable in advance.